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PSILOSIS

OR "SPRUE"

ITS NATURE AND TREATMENT

WITH OBSERVATIONS ON VARIOUS FORMS
OF DIARRHŒA ACQUIRED IN
THE TROPICS



BY

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PREFACE.

THE exhaustion of the first edition of 'Psilosis or Sprue' has imposed on me the duty of preparing a second. Since the first edition was written I have had an enlarged experience of the treatment of the disease, and greater opportunities of comparing the types of diarrhœa and intestinal disturbances acquired in different tropical countries. It is my present purpose to put on record what I consider to be important in connection with the treatment and pathology of psilosis, and to submit to my readers evidence that bears on the question whether forms of diarrhœa acquired in China and the Eastern Archipelago are identical with those that occur in Cochin China, and more particularly in India; or whether there are several types of this disease distinct from each other, and capable of being diagnosed as separate varieties, and therefore presumably dependent on different causes.

An unusual feature of this volume is the disproportionate amount of space given to the histories of selected cases. Although in many respects these cases are simply repetitions of each other, yet they vary in not unimportant details, and their study will, I hope, be useful to medical men who read them in order to obtain guidance in the treatment of psilosis. They will also afford material by means of which the reader may form independent opinions regarding the various questions discussed in the text. I am satisfied that it is only by a careful record of many cases that unanimity will be reached regarding matters which are still legitimate subjects of dispute.

One useful purpose which I trust this volume may fulfil is to show the nature and number of the problems which still remain to be solved in connection with this disease, and to stimulate further observation and inquiry amongst the few who have ample opportunities for their study.

Malarial fever, dysentery, and psilosis are the chief agents in collecting the blood-tax which the maintenance of our commerce and our possessions in the East entails on this country. Of the three,

the effects of psilosis are probably least appreciated and least known, but they certainly assume larger proportions than is generally supposed. This disease is responsible for much and prolonged bad health, not only in the country in which it originates, but amongst persons who have returned to Europe, and who find their health and strength severely shattered by the painful symptoms and the malnutrition with which it is associated.

If this volume and the work which it records should contribute in a very small degree towards alleviating the effects of this scourge, I shall be amply repaid for my labour.

It is my pleasant duty to thank the Council of the Royal Medical and Chirurgical Society for permission to reproduce two coloured plates showing the appearances of the tongue, and to thank the British Medical Association for permission to reproduce a coloured plate of the tongue and the woodcuts which illustrate the histology of a case which was originally published in the 'British Medical Journal.'

LONDON; *May*, 1897.

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PSILOSIS.

CHAPTER I.

DEFINITION AND SYMPTOMS.

CHAP. I.

I HAVE suggested *Psilosis* (*linguæ vel mucosæ intestini*) as a suitable name for a disease of the digestive tract which is known in some, but not in all tropical countries. This term (from ψιλός, bare) is expressive of the fact that a leading feature of the disease is a rawness or bareness of the tongue and intestinal mucous membrane. That a more expressive designation of the disease than those previously in use was wanted, is shown by the fact that psilosis has passed into general acceptation.

The term
Psilosis.

The affection in question has had a variety of names, amongst others *Aphthæo-gastro-enteritis tropica*, and *Gastro-enteritis aphthosa indica*. In Java, where it appears to be more common than in

CHAP. I.

other tropical countries, it is usually known as “sprue,” or “Indian sprue.”

“*Sprue.*”

Sprue is a word used in some parts of the Scottish Lowlands and in Holland to express a common disease of the mouth in children, which is characterised by aphthous deposits; and as one of the most striking features in psilosis is an inflammatory condition of the mucous membrane of the mouth, it is easy to understand how the Dutchmen in Java applied to it the familiar term. Following the Dutchmen, the word *sprue* has passed into common use amongst Englishmen engaged in commercial pursuits in the East, and was used by Dr. Manson in a paper published in the ‘China Imperial Maritime Customs Gazette’ in 1880.

*Definition of
psilosis.*

Psilosis may be briefly described as a chronic affection of the intestine, usually associated with irregularity or looseness of the bowels, localised inflammatory lesions of the tongue and the buccal mucous membrane, and with tenderness of the gullet. There is usually no blood or mucus

*Nature of the
diarrhœa.*

in the stools, and no straining. As a rule the diarrhœa is not acute, or in any sense of the word severe, although it may be so paroxysmally. The motions are of a very pale straw or yellowish

colour, unformed and frothy ; or, more particularly in chronic cases which have lasted some time, they consist of a greyish-white pultaceous mass, frequently in a state of apparent fermentation, the motion being often covered with air bubbles.

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In the early stages of the disease the diarrhoea is usually limited to the morning hours, the patient feeling well and being free from purging during the after part of the day. In the later stages dyspeptic symptoms are severe, and nutrition becomes profoundly affected.

The symptoms in the tongue and mouth are in some cases particularly troublesome, the patient being unable to swallow anything that is hot, either in temperature or by seasoning, and even the weakest alcoholic drinks give pain. The peculiarity of the affections of the tongue and mouth is their fugitive character. The tongue or mucous membrane may become the seat of an eruption which is almost herpetic at the outset, soon leaving slight superficial ulcerations ; or the whole tongue, or patches of it, may gradually become red and bare. In early cases these symptoms may entirely disappear in a few days, but fresh eruptions on the tongue and mouth are frequently the precursors of a relapse.

*Symptoms in
the mouth.*

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*General
symptoms.*

The disease usually, but not always, begins insidiously, is generally very chronic, and when a patient is apparently cured he is very liable to relapse. Whilst it lasts the patient becomes more and more emaciated, and often extremely anæmic. There is no jaundice and no bile in the urine, which is usually light-coloured. The liver has a tendency to become smaller, and often becomes very much shrunken.

These are the main features of this disease. The prominence which some symptoms have over others varies in different cases, as do the intensity of the symptoms and their duration; and the special predominance of one symptom, such as the condition of the mouth, dyspepsia, malnutrition, or diarrhœa, not only leads to cases being grouped in special categories, but even gives to almost every case a special feature. It will be useful, therefore, to describe the various symptoms in some detail.

*The "expression" of
patients.*

Some of the patients have an expression which is almost characteristic. Many of them look anxious and depressed; a few have a withered, shrunken face, and look older than their age; while others have a peculiar vacuous, absent expression.

Some of them do not look ill, but this is exceptional; most of them look weak, and many of them emaciated. When the affection has lasted some time, and is severe, the sunken orbit and pearly-white conjunctiva (in only a few exceptional cases tinged with yellow) contribute to increase the impression they give of being gravely affected by disease. The changed aspect which they present depends on the severity of the attack, as well as on its duration. Some of them look ill very soon,—indeed, from the beginning; while others do not show it much in their faces until after a considerable time.

Changes in the mental condition depend not only on the stage of the disease, but on the temperament of the patient. Depression, irritability, and sleeplessness are not uncommon. In the later stage of the malady there may be more or less cerebral excitement, the patient refusing to realise the serious nature of his condition, and often occupying his mind intensely with subjects that ought to be of comparatively little interest to him. This state of mind adds very greatly to the difficulty of treating the disease, as it is generally accompanied with unwillingness to submit to the

*Mental
symptoms.*

CHAP. I. regimen which is so necessary if a cure is to be obtained.

There are cases, on the other hand, in which the mental condition is characterised by dulness and indifference.

Malnutrition.

When the disease is advanced, and the nutrition is much impaired, the loss of weight, which usually begins early, is very great, a patient often losing from two to three stones. The skin is harsh, the ankles œdematous, and the weakness and emaciation become very marked. During this time there is usually no fever, the temperature often being subnormal. The pulse is slow and feeble. There is no jaundice, no pain in the liver, and no bile in the urine.

Dyspepsia.

Apart from diarrhœa the patient suffers from symptoms which may be termed those of dyspepsia proper. He experiences sour eructations, distension, heartburn, and flatulence. These symptoms are very much aggravated if he indulges in indigestible food. He has a capricious appetite, and sometimes a great craving for meat.

Duration.

The duration of the disease varies within very wide limits, and I do not find it is possible to divide it properly into stages marked by the length of time that it has lasted. Its course,

whether it is treated or not, is usually marked by periods of exacerbation, patients often relapsing after they have been apparently doing well.

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Those who do not diet themselves, and who live injudiciously, often vary very much in their condition, sometimes feeling fairly well, with little or no diarrhœa, and at other times suffering from acute dyspeptic symptoms and severe diarrhœa. It is sometimes difficult, or even impossible, to account for these changes. There are patients who recover without undergoing great restrictions as to diet, and their experience is often quoted as a reason for declining thorough treatment. One patient will refer to the good effects of a trip to Switzerland, and wish to repeat it. Another will refer to a period of great improvement after a course of hydropathy, and desire to renew the experience. Another attributes the aggravation of his symptoms to a change in the weather, or to the climate in which he happens to be at the time; and they are all of them ready to urge any plausible argument to show that they can get well without abstemiousness in diet.

Variation of symptoms.

The condition of the bowels, though often characterised by considerable diarrhœa, is most accurately described as irregular. When diarrhœa

Condition of the motions.

CHAP. I.

is present several fluid motions are usually passed in the early morning hours, the diarrhœa ceasing in the afternoon, and the patient feeling comparatively well for the rest of the day. This is especially the case in the early stages of the disease. Diarrhœa may gradually supervene on a simple tendency to looseness of the motions, becoming more marked when the disease has lasted some time. On the other hand, there are cases—but these constitute a considerable minority—in which the disease sets in by severe diarrhœa from the first. When the diarrhœa is moderate—to the extent of two, three, or four motions in the early part of the day—the stools are usually thin, and of a very light yellow colour, but this is not invariably the case. The quantity passed is sometimes very considerable. Many patients pass large pulpy, pultaceous stools, greyish brown, light yellow or putty-coloured,—sometimes, but not very frequently, of a light green colour, and often containing fragments of undigested food. This pulpy condition of the motions may intermit with watery stools, or with small, hard, dark-coloured lumps. During the periods of partial improvement the motions become less watery, and of a consistence almost sufficient to produce

a formed motion. The amount passed is sometimes very great, and shows that a want of absorption on the part of the bowel is one of the leading features of the disease. The contents of the intestine are passed down through the colon without the fluid element being taken up. Although the condition of the stools varies much, there being sometimes so little diarrrhœa as hardly to engage the attention of the patient, as a rule he never passes healthy stools, thus showing that the disease is always present although comparatively quiescent. Frothiness is sometimes a marked characteristic of these stools, the number of air bubbles which they generate showing that active fermentation is going on in the discharges. As a rule, pain is not a characteristic of the diarrrhœa, although some patients complain of griping before a stool is passed; and there is occasionally an inflammatory condition around, and immediately inside, the anus. The reaction of the motions to blue litmus paper shows that they are almost invariably acid.

In acute exacerbations there are delicate worm-like shreds mixed with the motions, which, when examined under the microscope, are seen to consist of small narrow flakes of mucus, amongst

Mucus in the motions.

CHAP. I.

which breaking-up epithelial cells may be sometimes detected. These small, white, mucous flocculi are very different from the slimy stools of dysentery. Thick flakes of mucus are not seen, and for considerable periods no mucus can be detected on inspection of the stools, even by microscopic examination. Blood is very rarely present, but traces of it may be found towards the end of fatal cases, when it accompanies painful congestion of the rectum and anus. When the patient recovers the first solid motions are white, and often remain so for a considerable time. One part of the motion may be yellow, and the other absolutely white, the line of demarcation of the two colours being sharp. The best criterion of recovery being complete and real is the passing of yellowish-brown, solid motions. There are considerations in connection with the change in the colour of the motions which I shall treat separately in another section.

*Mouth
symptoms.*

The condition of the mouth, tongue, soft palate, and gullet in this disease deserves special attention, the symptoms connected with these parts often causing much distress to the patient. They are more or less diagnostic of his condition, and their state often affords valuable indications

regarding the progress of the disease. (A very important question, which shall be discussed later on, namely, whether the “sprue” of the Dutch physicians is a different disease from the diarrhœa alba of India, and the forms of diarrhœa described by the names of the respective Eastern countries in which they occur, must, in the present state of our knowledge, be judged to a large extent by the symptoms which are present or absent in those parts.) In psilosis the whole buccal cavity may be redder than natural, but this is not at all common. The mucous membrane of the cheeks and lips may be pale all over, and may present congested points or patches brought into relief by the surrounding pallor. There may be slight superficial inflammation on special points of the mucous membrane of the cheek, so superficial that it may disappear in a few days and leave no trace behind it; thus clearly indicating that the inflammatory condition is limited to the epithelial covering. These patches may be solitary, or there may be two or three of them. The gums may be swollen.

*Mucous
membrane of
the cheeks.*

In the later stages of the disease, when the anæmia is extreme, the mucous membrane of the lips is very exsanguine, and where not reddened

Lips.

CHAP. I. by the hyperæmia surrounding the slight ulceration it is of a dull, pale yellowish hue. The mucous membrane of the lower lip, the cheeks, and at the angles of the mouth, often becomes tender and the seat of slight abrasions. After some time it may become opaque and thickened at these parts, and this thickened membrane may be the seat of painful cracks. Reddening of the mucous membrane of the mouth is always associated with tenderness. The patches of inflammation on the cheek often occur on the part opposite the line of junction of the upper and lower teeth. A solitary white, raised, inflammatory swelling, varying in size from a pea to that of a bean, may appear on any part of the mucous membrane of the cheek or the lower lip, and less frequently the upper lip.

The tongue. The tongue becomes affected either at a very early stage of the disease, or shortly after the intestinal symptoms have developed. At first it may be slightly furred and swollen, but very soon the symptoms concentrate themselves on certain points of its surface. The tip and edges of the anterior part of the organ become of a bright, rosy-red colour, and red patches may show themselves on various parts of the surface, isolated in

the white epithelial fur, and in these patches large congested papillæ are visible. Slight superficial ulceration may occur on the sides of the tip, particularly on its under surface, near the frænum; but very seldom indeed on the dorsum of the tongue. These ulcerations do not go deeper than the epithelial covering, and seem to consist of small shreds of necrosed epithelium.

In acute cases, and when the mouth and tongue *Soft palate.* symptoms are well marked, there is, not infrequently, a localised erythematous patch or patches on the soft palate, which sometimes assume the form of a distinct herpetic eruption. These herpetic eruptions on the palate may occur very early in the disease, and are quite different from the aphthous affections of the mouth which are common in the latter stages of this and of some other diseases.

The mouth then becomes extremely tender; *Tenderness of mouth.* hot fluids, condiments, wine or other alcoholic drinks burn the tongue, and render eating and drinking painful. When the tongue is in this condition its movements cause so much discomfort that the patient, in speaking, disturbs it as little as possible, rendering the utterance thick and indistinct. If the disease does not advance,

CHAP. I.

the tongue may remain a considerable time in this condition, getting well and ill alternately; but as the malady makes progress a series of further changes take place in its epithelium, the fur gradually disappearing, leaving the organ uniformly red, and often very smooth. Before the disappearance of the fur the dorsum may have been divided, by grooves or cracks, into so many different fields. After the disappearance of the fur these grooves remain, and become deeper and more marked.

*Condition of
the tongue in
advanced
stages.*

When this stage has been reached the tongue is smooth, sometimes glazed, shiny, very red, and with or without crevices and fields; or if the patient is extremely anæmic, and if there are no active inflammatory symptoms in the mouth, the condition of anæmia may be indicated by the tongue becoming small and yellowish white in colour. The degree to which these special conditions may occur varies very much in different cases. In some the smooth stage is early reached; in others not even after most of the fur has disappeared. The surface of the tongue may not only be split into a great number of fields, but each field may be made up of groups of abnormally enlarged papillæ, standing out in bunches; a

number of smaller groups being sometimes bounded by deep crevices and by larger papillæ, the whole tongue presenting an extremely rough, irregular, and uneven surface. The disappearance of the white fur of the raised papillæ, and the appearance of the smooth shiny surface, indicate an advanced condition of the disease, but they sometimes appear when the patient still retains a considerable degree of strength. In these advanced cases a reappearance of very fine delicate fur, almost colourless, indicates that the patient is beginning to improve. In the later stages of the common diarrhœa of India (diarrhœa alba, &c.) the tongue may become denuded of epithelium. The points of difference as regards the tongue in these two conditions will be considered later on, when I discuss the question of the diagnosis.

There are cases in which the condition of the tongue is almost the only symptom. The first minute observations which I made on the condition of the tongue were in the case of a patient who consulted me on account of the acutely painful sensation he had when drinking anything hot. The tip of his tongue and several parts of its under surface were the seat of bright erythematous spots, which were very painful, and

*Tongue
symptoms
may be
accentuated.*

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which refused to yield to local treatment. I had seen him for some time before it occurred to me to make the inquiries necessary to identify the condition with climatic disease. The man had been for a number of years resident on the coast of China, and had returned to London in what he considered to be comparatively good health, and did not complain of diarrhœa. The condition slowly yielded to dietetic treatment. In these cases, if careful inquiry is made and the stools are examined, it will be found that the motions are not healthy. Instances of this kind are, however, very rare, and in the great majority of cases the symptoms of dyspepsia and disordered bowels claim the patient's attention simultaneously with the condition of the tongue.

*Œsophageal
symptoms.*

In many cases the inflammatory condition is not limited to the mouth and soft palate, but extends down the œsophagus. The œsophageal symptoms vary much in different patients; in some they are not complained of at all, in others only very slightly. In some, on the other hand, they produce great distress, the passage of food from the throat to the stomach being attended by severe pain the whole way. One patient complained that everything, except milk and water, gave her

pain from the mouth to the stomach, even the softest grain of boiled sago producing distress. In some patients, in addition to the sensation of simple pain, there is a distressing feeling of dryness. The hawking, and sometimes retching, after food is taken, which is associated with this condition, is evidently due to morsels of solid matter lodging in the pharynx and on the raw surface of the gullet.

The voice is sometimes, but not always, *The voice.* markedly altered.

During the progress of the disease there is comparatively little to be detected by examination of the abdomen. There is usually tumidity in the epigastric region, with an arched condition of the abdominal wall, and a peculiar soft, doughy feeling on pressure, this condition being sometimes very marked, in contrast with the emaciation of the limbs and thorax, but there is comparatively little pain or tenderness. Sometimes there is no tenderness; at other times there is a feeling of discomfort elicited by firm pressure. In a few cases distinct tenderness can be produced. In one patient, all through her illness, and until her cure was thoroughly established, there was a tender spot a little to the right of the umbilicus.

CHAP. I.

The uneasy sensation of which the abdomen is the seat, is associated, during the course of the illness, with the character and amount of diarrhœa. There is occasionally a soreness about the anus, but this is not very common, and many patients do not complain of it at all.

Rectal symptoms.

In the few fatal cases which I have seen, death has been preceded by symptoms of irritation and inflammation of the rectum; but these symptoms occurred quite in the last stages of the malady.

Absence of fever.

As a rule, there is no fever attending the progress of the disease, in most cases the temperature being normal, or, as is very frequently the case, subnormal. In one fatal case, the temperature rose slightly the week preceding the death of the patient.

Albuminuria absent.

As a rule, also, the urine presents nothing abnormal, and albuminuria is certainly not a common complication of the disease.

Anæmia.

These patients are all more or less anæmic. In severe cases the anæmia is very considerable, and in bad cases it is sometimes extreme. I have known cases mistaken for pernicious anæmia by medical men who had never seen the disease, and who were not aware of its existence; and I have

had the diagnosis of pernicious anæmia insisted on in one of my own cases by a physician in London. I have had no enumeration made of the blood-corpuscles in very bad cases, but in cases that were of average severity the following figures were found.

In Case 10 the red corpuscles were 1,820,000 per cubic millimetre, and the proportion of white to red 1 in 100. In Case 29 the red corpuscles were 2,500,000, and the proportion of white to red 1 in 400. In Case 9 the red corpuscles were 2,000,000, and the proportion of white to red 1 in 160. This condition of extreme anæmia rapidly improved when the patients were put on milk diet. Dr. Wethered, who counted the blood-corpuscles for me in these cases, also estimated the percentage of hæmoglobin by Fleischl's hæmometer, and found it comparatively increased, being 70 per cent. in Case 10, 58 per cent. in Case 29, and 65 per cent. in Case 9.

*Enumera-
tion of blood-
corpuscles.*

Bertrand and Fontan (page 194) found in their cases of chronic diarrhœa of Cochin China, that the red corpuscles were usually 3,000,000 to 4,000,000, but 3,000,000 was not rare, and exceptionally they found less than 2,000,000. They refer to a case in which, for eight days, the

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number varied between 1,800,000 and 1,750,000. When the patient left hospital cured for the time being, the number had increased to 3,390,000.

I suggest that the cause of anæmia is not simple mal-nutrition; the rapidity with which it improves when the patient is put on milk diet, even before active nutrition has had time to greatly improve, suggests to me more the idea that in this disease the blood-formation is injured by the absorption from the intestine of the products of abnormal fermentation, and that the blood is really poisoned from the intestinal canal.

CHAPTER II.

GEOGRAPHICAL DISTRIBUTION.

CHAP. II.

THE cases of true psilosis (using the term in the strict sense for which I have proposed it) that have come under my observation have been those of patients who contracted the disease in Ceylon, the Straits Settlements, and the coast of China and Manila; and the testimony of the Dutch physicians shows that it is very prevalent in Java. The white diarrhœa or tropical diarrhœa of India, of which many cases are seen in London, and to which the term psilosis may be extended in a wider sense, as indicating the bareness of the intestinal mucous membrane, is prevalent in the plains and mountains of Hindostan, and the diarrhœa of Cochin China described by the French writers is probably closely allied to this latter form. From the geographical position of Cochin China, cases of psilosis linguæ might be expected to be found

*Countries
in which
psilosis
prevails.*

CHAP. II.

*Symptoms
may first
develop after
return to
Europe.*

in that country. The increasing attention which is given to the subject will doubtless lead, in the near future, to this point being cleared up. Cases of chronic diarrhœa from the West Indies resemble the diarrhœa alba of India, and there are also cases there in which the mouth symptoms are accentuated. In the last century, Hillary described a disease in Barbadoes of which the symptoms were typically those of psilosis linguæ et intestini. Although in the majority of cases of both these forms the disease is acquired in the tropical countries in which it prevails, several writers concur in bearing testimony to the fact that the distinctive symptoms may develop for the first time after the patients have returned to Europe. Roux states that Europeans who have only been fifteen to twenty days, or even only a few days, in Cochin China, and who leave the country quite well, have become affected with the disease after they returned to France. I have myself seen well-marked cases in London, in patients who had no intestinal symptoms while resident in the tropics. The majority of them would come under the designation of the tropical diarrhœa of Indian writers, but several of them have shown symptoms which, although not quite conclusive,

much resembled subacute cases of psilosis linguæ. In one of these cases in which the symptoms resembled those of the latter category, the patient had lived in England for seventeen years, after a somewhat long residence in China. These cases differ from those of chronic diarrhœa occurring in this country in the severity and obstinacy of the symptoms, and in the grave condition of the general health to which they lead; and the medical men who are called on to treat them, generally recognise that they are dealing with a disease which differs from any malady with which they are familiar as occurring in persons who have not lived in the tropics.

CHAPTER III.

DIAGNOSIS.

CHAP. III.

*Difference
between
psilosis and
dysentery.*

No one who is familiar with true or tropical dysentery could confound it with this disease, so long as the dysentery was in the acute or the subacute stage. The characteristic symptoms of dysentery—straining, blood and mucus in the evacuations, and symptoms of acute localised inflammation in the large intestine—are all absent; but the diagnosis between psilosis and a condition which may be termed a sequela of dysentery is not always quite so evident. Nevertheless, with a little attention it can, I believe, always be made. Patients who have suffered from severe attacks of dysentery are liable, even after their return to temperate climates, to a form of diarrhoea and dyspepsia, which is frequently not accompanied with the active symptoms of the dysenteric inflammation. Such persons, after exposure to cold, or after error in diet, are liable to have

watery or soft stools, without mucus or blood, and to suffer very considerably from dyspeptic symptoms. So much may this be the case that it often requires care to localise the chief source of the evil in the large intestine. In my experience, in such cases the differential diagnosis is most easily made by a consideration of the tongue and mouth, taken in conjunction with the previous history of the illness. In the sequelæ of dysentery the tongue is usually large, flabby, and coated, and symptoms of inflammation in the palate and gullet are wanting. If there are any symptoms in the mouth at all, they are due to the soreness of the edges of the enlarged tongue, produced by pressure against the teeth, favoured by the disposition to irritable tongue more or less present in all intestinal affections; but this is not to be confounded with the very specific eruption which characterises psilosis. If in such cases death is produced quickly by some intercurrent disease, of which I have lately seen an example, well-marked ulceration is found in the large bowel, partially or wholly cicatrised, and at some points there is evidence of freshly set up irritation. The small bowel is found more or less thin and soft, according to the duration of the disease.

CHAP. III.

When patients who are affected with chronic diarrhœa which has followed previous dysentery, suffer from an acute relapse, the diagnosis between dysentery and diarrhœa becomes at once clear. In the dysenteric form mucous shreds of membrane and sometimes blood are passed, and to an extent that is never seen even in the worst cases of psilosis.

*Psilosis
mistaken for
syphilis.*

Cases of psilosis linguæ have been mistaken for syphilis. The condition of the tongue in a well-marked case was considered to be syphilitic by a very distinguished London physician, who insisted on his diagnosis after the patient had assured him he had never had syphilis, and declined to treat him on any other basis. The patient then sought the advice of another physician, whose knowledge of syphilis was more exact than that of his distinguished *confrère*, and who was able to appreciate the difference between the symptoms which he saw and syphilitic mucous patches of the tongue. Although not very familiar with psilosis, he had read what had been written on the subject, and was able to make an accurate diagnosis. This happened in another case, one of the patients whose history is related in this volume, who, in an early stage of his symptoms,

found it impossible to convince a physician whom he consulted that he was not suffering from syphilitic inflammation of the tongue. This case came under my own care, and there was no doubt about the nature of the disease.

A similar mistake was made recently by a physician in Rome. A patient with true psilosis, in whom recovery had taken place to a considerable extent, was seized, when in Rome, with an acute relapse, and consulted a Roman physician, who seemed to have no doubt in his own mind that the case was one of recent syphilis—a disease from which the man had never suffered. This patient subsequently came under my care, when I found that the case was one of well-marked psilosis.

These mistakes by experienced physicians prove that the condition of the tongue in this disease is distinct from all the ordinary affections of that organ with which medical men in Europe have to deal, and are strong evidence to the existence of a climatic malady, of which manifestations on the tongue and mouth are early and pathognomonic symptoms.

A diagnostic point of much greater difficulty and of extreme interest is the relation which

*Various
forms of
psilosis.*

CHAP. III. psilosis, as I have described it, bears to the common form of diarrhœa that prevails in India—the diarrhœa alba or white flux of the plains. The so-called hill diarrhœa is recognised by some Indian writers as the same disease as diarrhœa alba, which in its results also produces a condition of psilosis of the intestine. The French writers have recently described in great detail a form of chronic diarrhœa which prevails in Cochin China.

CHAPTER IV.

NOTES ON THE LITERATURE OF PSILOSIS.

CHAP. IV.

AN exhaustive essay on psilosis,* of which he wrote as "Indian Spruw," has been written by Dr. Van der Burg. His work obtained a prize offered by the "Society for the Advancement of Medical Science in the Netherlands," and was translated in the 'Chinese Imperial Customs Gazette.' The author, who had a long and extensive experience of the disease in Batavia, describes it as an endemic disease met with in hot climates. He states that it is never epidemic, being always protopathic, and that it does not appear as a consequence of another disease; that it is always passive in character, chronic, non-contagious, generally remittent, and that recovery is not impossible. It is liable to relapse if a cure has been effected. In fatal cases the patient dies from exhaustion.

Dr. Van der Burg's description of "Indian Spruw," i.e. Dutch India —Java.

* 'Indische Spruw, Aphthæ tropicæ,' Batavia, Ernst and Co., 1880.

CHAP. IV.

The first symptoms are not listinctive, consisting of hepatic derangement. An excess of bile is poured into the intestine ; in a few hours secretion diminishes ; the stools become pale, pungent, and irritating. These symptoms do not necessarily indicate sprue.

It is only, he states, after these bile-lacking stools have persisted for a considerable time, and have determined an intestinal catarrh in which the stomach shares, that we may think of sprue. The hepatic derangement persists and grows worse, bile being absent from the stools ; although there is no jaundice, and no bile elements in the urine, anæmia is always present. Tropical sprue, he adds, is a disease *sui generis*, to be distinguished from simple gastro-intestinal catarrh or follicular dysentery. The combination of symptoms declaring themselves in the mouth, intestinal tract, and liver, furnishes, he states, the key to the diagnosis of Indian sprue.

Dr. Van der Burg's chapter on the morbid anatomy of the affection is short, and being founded on inferences from the appearances observed during life and on quotations from other authors, is not very instructive.

In regard to the ætiology, this author states

that, although climatic, the disease does not attack new arrivals, and is less frequent in dark races than amongst Europeans. Patients have generally reached middle age, but it occurs in both extremes of life. It is more frequent in females than in males, and pregnancy predisposes to it. He considers that the primary causes are identical with those of gastro-intestinal catarrh, the mucous membrane of the intestine being in these countries more liable to serious affections than in cold climates. Neither alcohol nor malaria causes the disease.

CHAP. IV.

He divides the course of the malady somewhat arbitrarily into three stages. In the first stage there is a slightly evolving gastro-intestinal catarrh, manifesting itself by irregularity of the bowels, and sometimes by vomiting, ravenous appetite, general malaise, and slight affection of the mouth. The epigastrium is somewhat swollen, distension being caused by accumulation of gas which is being frequently eructated.

*Van der
Burg's
three stages.*

Fluid from the stomach, which accompanies the eructation, burns the gullet and pharynx, and the eructated matters leave a sour taste in the mouth, which leads to persistent movements of deglutition, and the secretion of extremely

CHAP. IV. tenacious saliva. The epigastrium is not tender. The tongue, which at first was normal, shows on careful examination, on the base and point, and protruding through the fur, injected *papillæ clavatæ*. The borders of the tongue are sensitive. The bowels are irregular; constipation alternating with diarrhœa, natural motions alternating with thin or watery light yellow stools. There is no fever. Patients look well, except that there is yellow discoloration of the lower part of the conjunctiva.

When the symptoms mark what he calls the second stage, we find the signs of gastro-intestinal catarrh again predominant. The condition of the tongue is now characteristic. Red specks cover the whole surface and become confluent, the mouldy coating of the first stage having disappeared. The roughness of the *papillæ* disappears, so that when the tongue is protruded it presents a smooth, glossy red mass, resembling raw meat. The epithelium and *papillæ* seem to have disappeared. There are sometimes fissures present. The redness of the tongue is an indication of the general condition. The gums, palate, pharynx, and œsophagus share in this discoloration. The unnatural smoothness of the

mucous membrane is the cause of a greasy, rancid taste being experienced, and when the patient is asleep the tongue often adheres to the lining membrane of the mouth. The patient becomes anæmic, emaciated, and suffers from constant flatulence and capricious appetite. The condition of the bowels varies, the motions sometimes consisting of old accumulations in the sacculi of the colon, alternating with the characteristic grey pultaceous discharge. The liver shrinks, albumen is sometimes found in the urine, particularly when the patients are anæmic. In all these cases there is in both sexes irritability of the external meatus, and herpes preputialis is sometimes observed. There is still no fever. The skin is dry, perspiration being almost absent. Patients do not generally look ill. There is great muscular weakness and considerable mental depression, with much irritability in manner. Mental excitement increases the symptoms, bringing on vomiting and diarrhœa. Months, even years, may thus pass away, rendered miserable chiefly by the antiperistaltic action of the stomach.

What Van der Burg describes as the third stage is simply an aggravation of the second with the signs of general exhaustion. Wasting,

CHAP. IV. vomiting, flatulence, and more diarrhoea are the chief symptoms. Fever makes its appearance, and death from exhaustion ensues. The epigastrium is tender, appetite fails; there is a burning sensation in the gullet, mouth, and nose; the buccal cavity is of a fiery red; the tongue smooth, and divided by deep fissures; the mouth is parched, with great secretion of saliva; the liver becomes smaller, pulse quick, skin wrinkled, and face shrunken; but the patient does not lose hope.

Diagnostically, this author sets the greatest value on the shrinking of the liver and concomitant affection of the mouth, as distinctly marking off Indian sprue from other gastro-intestinal catarrhs.

When recovery takes place the liver remains shrunken, the probability of relapse being proportionate to the degree of hepatic diminution. He has observed the disease frequently in children from one and a half to four years old, but had not found a single case between the age of four and puberty.

It is interesting to compare Dr. Van der Burg's description with the accounts given by Indian writers of the diarrhoeas of India.

Much information on this subject will be found in the valuable book 'Diseases of India,' by Dr. Norman Chevers. In this work the author quotes Twining, who wrote in 1829 to the effect that when dysentery becomes chronic, certain patients suffer from continuous, copious, watery motions, sometimes attended with an appearance of fermentation, like a mixture of chalk and beer; often a portion of the aliment passing undigested and the fæces being of various colours, but mostly of a pale grey and slimy or white matter, while blood is rarely present in the stools.

CHAP. IV.

The Indian forms.

Twining quoted, and remark by Dr. Chevers.

In reference to this description, Dr. Chevers observes, "If this chronic white flux be the outcome of dysentery, it is singular that it never followed that disease in the many hundred cases which came under my care in Bengal." He then refers to the account given of hill diarrhoea by Mr. Alexander Grant in 1854, and expresses the opinion that this malady is different from the diarrhoea alba of the plains of India, more especially in its incurability when treatment is long deferred. The attacks are not confined to persons in broken-down health, residents in the prime of life and of a sound constitution being very frequently affected. It prevails

Hill diarrhoea and diarrhoea alba.

CHAP. IV. chiefly at the commencement of the rainy season, when the air, from being very warm and dry, becomes moist and cold.

With regard to the symptoms, it is pointed out that there is a process of slow exhaustive decay of body and mind under the influence of steady drainage by loose, frothy, or yeasty stools—in the early stage quite white, and later of a pale drab or muddy grey colour, always pultaceous in consistence.

The only remark made regarding the tongue, in the description which Dr. Chevers gives with Grant, is that an aphthous condition of the mucous membrane of the mouth, which probably extends throughout the whole of the gastro-intestinal tract, is frequently observed in these chronic diarrhœas.

What has been observed and taught regarding this disease will perhaps be best learnt from 'A Manual of the Diseases of India,' by Moore.* This author identifies the diarrhœa alba of the plains with the hill diarrhœa of the Himalayan stations, affirming that diarrhœa alba is not confined to the hills, and that it is a common malady in all the more northerly plains of Hindostan.

* Second edition, London, 1886.

He describes the disease in the following words : CHAP. IV.

“ The symptoms of diarrhœa alba are usually painless, but sometimes painful, purging occurring at first principally in the morning. The stools may at first be bilious-looking, but are often from the commencement, and always afterwards, light, almost white in colour. They are also copious and frothy. As the disease advances light stools are also passed in the evening, but the patient, probably continuing to feel tolerably well, takes little notice of the commencement of the malady. The calls to stool, although generally unattended with pain, are urgent, but the fæces are passed without straining or faintness, and are succeeded by a feeling of comfort. The most annoying symptoms are fulness and distension of the bowels by flatus, and eructations having the flavour of rotten egg. At first the stools themselves are not offensive, although afterwards becoming very much so. Often no very abnormal sensation is felt in the region of the liver, but sometimes from the very commencement there is an uneasy sensation. When this is inquired into, it is found to be rather a feeling of void than fulness, as if the ribs were about approximating. As the

*Moore's
description
of diarrhœa
alba.*

CHAP. IV. disease advances, the appetite, at first good, becomes the reverse, the pulse grows more feeble, the tongue is furred in the centre, and faintness may follow the stools. There is sometimes, at a later period, some degree of sallowness, and a bronzing, similar to that in Addison's disease, has been noticed. If the malady is not checked, the person falls into a state of confirmed cachexia. The stools become more numerous, progressive emaciation takes place, the mind becomes weak and fretful, and fever may occur. Then, probably, the stools become dysenteric, and the patient dies exhausted."

It is to be remarked that, in this description of diarrhœa alba, there is not a word regarding the condition of the tongue or throat, except that when the disease progresses the tongue becomes furred in the centre.

Sir Joseph Fayrer, in his work 'Tropical Dysentery and Chronic Diarrhœa, &c.,' * states (page 134) "that the hill diarrhœa and the white flux of other parts of India are only modifications of the same disease, and that the pathology and symptoms are so much alike that he regards them as identical."

* London, Churchill, 1881.

The symptoms, according to this observer, are “grey, whitish, light, or clay-coloured evacuations, which are frequent, copious, fluid or semi-fluid, often frothy, and occasionally lenteric, especially after any indiscretion in diet, or mixed with mucus tinged with blood when any fresh source of enteric irritation or congestion may have occurred.

CHAP. IV.

*Fayrer's
description
of diarrhœa
alba.*

“Its origin is often insidious, commencing with simple looseness of the bowels, little or no pain, and producing rather a feeling of relief than of suffering; and not until the subject of it finds that he is losing flesh, strength, and energy does he realise the serious nature of the complaint. . . .

The appearance of persons suffering from this disease is characteristic. They are pale and emaciated, with loose, dry, flaccid, flabby skin, which in later stages becomes discoloured as by chloasma or Addison's disease. The fat disappears, the eyes are pearly, and the lips and conjunctiva are blanched.”

The condition of the tongue is thus described :

“The tongue is dry and smooth, and in advanced stages it appears contracted and shrunk, its papillæ are obliterated, the surface is red,

*Condition
of tongue
referred to.*

CHAP. IV. glazed, and dry ; at times its edges are excoriated, and the buccal mucous membrane the seat of aphthous spots or epithelial proliferation, and so tender and sensitive as to be intolerant of wine or any substance or fluid in the least pungent or stimulating."

Fayrer, the first Indian writer to emphasise tongue symptoms.

It is to be observed that Fayrer is the first of the Indian writers whom I have quoted to call special attention to the condition of the tongue ; and he is probably the only one of them who, in his description of the disease, has drawn largely from patients who have returned to England from the East, and whose cases include a considerable proportion of invalids who have returned, not only from India, but from China and other parts of the Eastern Archipelago. They certainly include cases similar to those which I have described as suffering from psilosis linguæ, or the "sprue" of the Dutch writers. I believe, therefore, that it is probable that the reason why Sir Joseph Fayrer has specially emphasised the tongue symptoms, whilst other Indian writers have not done so, is that he has observed cases of true "sprue," whilst those writers whose descriptions were drawn only from cases in India had experience exclusively of the

cases of the diarrhœa alba of that country, in which the tongue symptoms are not marked in the early stages of the disease. CHAP. IV.

Sir Joseph Fayrer* relates in his book the histories of eleven cases observed by him in this country, and I have made a short abstract of them in relation to what is mentioned regarding the tongue symptoms.

CASE 1. *From Manila*.—Chronic dysentery. Tongue clean, not smooth. *References to tongue in Fayrer's cases.*

CASE 2. *From India*.—Chronic dysentery with large spleen. Tongue moist, coated with white fur.

CASE 3. *From India*.—Chronic dysentery. Tongue foul.

CASE 4. *From India*.—Chronic dysentery with abscesses in liver. The tongue not mentioned.

CASE 5. *From India*.—Liver abscesses. Chronic dysentery and diarrhœa. The tongue dry, smooth, and glazed.

CASE 6. *From China (Amoy)*.—Chronic diarrhœa. In the spring of 1879, after delicate health for some years, the tongue showed the first appearance of soreness, and all through the

* Op. cit., p. 148.

CHAP. IV. summer there were regular attacks of vomiting and diarrhoea. In the middle of July the tongue and the inside of the mouth were very bad, and the lips became much swollen. The patient was sent to Chefoo, and before she had been twelve hours at sea severe diarrhoea set in; this continued for seven weeks, during which time the tongue was better. The diarrhoea diminished under a little meat and ale. Returning to Shanghai during the hot weather, the tongue became again sore, and very foetid diarrhoea again set in. When she landed at Amoy in October she improved, but had attacks of sore tongue and sickness as before. As the diarrhoea was not checked by the colder weather, she was ordered to England. The day after arriving in this country (April 30th) excessive diarrhoea and sore tongue returned. The diarrhoea at once disappeared on milk diet, but it was not until June 15th that the tongue began to heal, and by the 23rd it was free from soreness. The patient was five months on milk diet.

CASE 7. *From India.* — Chronic diarrhoea. June, 1879, had diarrhoea. Arrived in England in August. The diarrhoea continued, coming on at night. Came under treatment in December,

1879. The tongue became sore soon after leaving Calcutta, and got worse afterwards. It had a bright red and glazed look. Soon after taking milk the tongue improved.

CASE 8. *From Burmah.*—Tropical diarrhoea. Tongue smooth, red, glazed, like half-dried steak. Mouth sore, with a few aphthous patches.

CASE 9. *From India.*—Tropical diarrhoea; albuminuria. The only remark about the tongue is at the end of the history of the case, when it is stated that after the patient was quite well the tongue was “natural, except a small portion near the tip, which is still smooth.”

CASE 10. *From India.*—Tropical diarrhoea. The tongue is not mentioned.

CASE 11. *From India.*—Chronic diarrhoea. “The tongue smooth, glistening appearance, almost destitute of epithelium.” This was a fatal case. At the autopsy, throughout the ileum at irregular intervals, small superficial weak ulcers with pigmented bases were found. The mucous membrane of the large intestine was of a dark slate-colour, from extensive pigmentation of the surface, but with no glandular lesions, ulcers, &c.

CHAP. IV.

*Tongue
symptoms
prominent in
a patient
from China.*

It is interesting to note that the only case here in which the condition of the mouth and tongue forms a special feature is that of a patient who came from China (Case 6); and in this case the symptoms resemble those which are considered peculiar to the *psilosis linguæ et intestini* of the Eastern Archipelago.

The state of the tongue in Cases 7, 8, 9, and 11 might be referred (so far as it is given) to the raw condition of the tongue which frequently follows the prolonged "white diarrhœa" of India, and which is due to the gradual loss of epithelium that occurs when the course of the disease is protracted. There is no note in these cases of the acute localised outbreaks on the tongue in the early stage of the disease, before exhaustion has set in.

*References to
the tongue in
another set
of cases by
Fayrer.*

The following notes are taken from thirteen cases described by Sir Joseph Fayrer in his contribution on this subject to 'Davidson's Hygiene and Diseases of Warm Climates.'

CASE 1.—Tropical diarrhœa from India, which lasted a year. The papillæ of the tongue not obliterated.

CASE 2.—Tropical diarrhœa from India. Two

years' constant white diarrhœa. The tongue red and glazed. CHAP. IV.

CASE 3.—Tropical diarrhœa from Mauritius. Frequently had aphthæ; the tongue not smooth.

CASE 4.—Tropical diarrhœa from India. Had lasted four years. The tongue was glazed, and the mouth was aphthous and ulcerated.

CASE 5.—Tropical diarrhœa from China; two years. Tongue smooth.

CASE 6.—Tropical diarrhœa, complicated with dysentery, from India. Noted after treatment that the papillæ of the tongue were well developed.

CASE 7.—Tropical diarrhœa from India and Burmah. After diarrhœa and emaciation the tongue became sore, and, together with the mouth, was affected with aphthous ulceration. When seen the tongue was sore and glazed.

CASE 8.—Tropical diarrhœa, India. Off and on for nine years. The tongue red, shrunken, smooth, and tender.

CASE 9.—Tropical diarrhœa, India. The tongue smooth and red.

CASE 10.—Tropical diarrhœa, India. After returning from India the tongue red.

CASE 11.—Tropical diarrhœa, Singapore, China,

CHAP. IV. and Batavia. The tongue red; aphthæ in the mouth.

CASE 12.—Tropical diarrhœa, India. Tongue red, smooth, and tender.

CASE 13.—Tropical diarrhœa. Case observed in Calcutta. Tongue raw, red, fissured with a few small aphthous ulcers on the dorsum and sides, and on the mucous membrane of the cheeks.

Sir Joseph (op. cit.) states that there is a close resemblance of this disease to some forms of chronic dysentery.

*Roux on the
diarrhœa of
Cochin
China.*

Dr. Fernand Roux, in his 'Traité pratique des Maladies des Pays chauds,'* gives an account of the chronic diarrhœa of Cochin China. Referring to those authors who have written on this form of diarrhœa, and who have stated that it is often preceded by an attack of ordinary dysentery, he expresses the opinion that they were describing cases of simple chronic dysentery, and not of the true diarrhœa of Cochin China.

In a great number of cases of the true diarrhœa of Cochin China the beginning is insidious, and is characterised by a simple relaxed condition of the bowels with pain, and in the great majority of cases it begins without any appreciable cause.

* Paris, G. Steinheil, 1888.

The disease is accompanied by soft or liquid stools, variable in number, the number not being always in relation to the gravity of the disease. At the beginning they sometimes contain bloody mucus, but it is not constant. They may be grey, whitish, or yellowish. There is no tenesmus. He quotes Normand as having observed masses of membranous substance floating on the liquid motions. The motions generally come in the morning. The disease, however, he considers to be more common in Cochin China than in India, and that the Cochin China diarrhoea is of a graver nature. During a stay of more than two years in Bengal he did not see a single European affected with diarrhoea similar to that which he has observed in Cochin China. In describing the diarrhoea of Cochin China he seems to follow, for the most part, the descriptions given by the writers on the diarrhoea of India.

As regards the tongue, he states that in the last stage of the affection it becomes narrow and contracted. He remarks that its surface is red, and its edges often excoriated, but the few words in which his description of the tongue is given are evidently copied from Sir Joseph Fayrer. He does not consider that the diagnosis between this

*Roux's
description
of the tongue
in the
Cochin
China cases.*

CHAP. IV. disease and the diarrhœa of chronic dysentery offers any difficulty.

*Enterocolitis
of Bertrand
and Fontan.*

A very comprehensive account of the diarrhœa of Cochin-China is given in the work of Drs. Bertrand and Fontan, 'De l'Entérocolite chronique endémique des Pays chauds, Diarrhée de Cochinchine, Diarrhée chronique des pays chauds.' (Paris, 1887.)

These authors regard this affection as being essentially of the same nature as dysentery, and consider that its special symptoms are caused by an inflammatory condition, the nature of which is common to both, locating itself in the first instance in the small intestine. The inflammation of the colon follows the affection of the small intestine; whereas in the diarrhœa of chronic dysentery the inflammatory process in the large intestine travels upwards, and the small intestine is the last to be affected. Hence the name which they propose—"Enterocolitis." They give as synonyms hill diarrhœa, diarrhœa alba, Indian sprue, tropical sprue, and sprue; and they state that it is found in Asia, Africa, America, and Oceania, and especially in Cochin China and India.

They quote Fayrer's description as showing

the identity of hill diarrhœa with the diarrhœa of Cochin China. The disease, they state, is very rare in French India, and does not occur in Japan.* It exists in the north of Africa, but seems to be very rare on the west coast of Africa. Apparently it does not occur in the islands of Réunion and Mauritius. The chronic diarrhœa of the Antilles appears to be the same.

CHAP. IV.

Countries in which enterocolitis prevails.

It is endemic in Mexico, and occurs in Java.†

The authors believe that the disease has two different initial forms; one in which the first symptoms are those of diarrhœa, and another in which the first symptoms are dysenteric. They quote M. Layet, M. Lenoir, and M. Mahé, and as they write approvingly of M. Mahé's description, I shall translate it. These are M. Mahé's words as quoted :

It has two initial forms.

“ The disordered state of the bowels may be caused by fatigue, cold, error in diet, &c., but most frequently it occurs without any manifest cause,—a diarrhœa of the ordinary character manifesting itself either after some gastric disturbance, or usually without any previous

Mahé's description quoted.

* I have known of at least one case occurring in Yokohama.

† In regard to the disease in Java, the authors of course assume that the sprue of Van der Burg is the same disease.

CHAP. IV. symptoms. The alvine discharges are generally not numerous, there being three, four, five, or six in the twenty-four hours. Their passage is accompanied by some pain, with straining, but without the true tenesmus of dysentery. There are colicky pains, and occasionally severe nausea, repugnance to food, or diminished appetite; but most usually the diarrhoea is painless, without any marked reaction on the circulation or digestion. The temperature is probably not altered, although there are no exact data on this point. The alvine evacuations are mucoid, very commonly sero-mucoid. They vary much in colour. They may be bilious, yellowish, greyish, or white, but most frequently they are not coloured at all, or are very slightly coloured. They are chiefly watery,—in short, very similar to the stools of ordinary diarrhoea.

“The tongue is a little coated, almost red at the point. The mouth is clammy, with a bitter taste. The abdomen is slightly swollen and soft; and it may be sensitive or even tender to the touch, but usually it is almost normal.

“The patients, as a rule, continue to fulfil the ordinary duties of their occupations, and very probably may not think it necessary to take

medical advice, or to submit themselves to proper régime, attributing the symptoms to simply a deranged stomach or temporary indisposition. This condition may last for weeks or months, until it ceases spontaneously, or by the exhibition of remedies, or it passes to the subacute condition, and finally becomes chronic."

MM. Bertrand and Fontan believe that there is a second, a dysenteric form, which occurs when the patient, who is weakened by climate and previous maladies, is attacked by dysentery. The dysenteric symptoms are not acute, and pass into a condition which they consider to be the same as the chronic diarrhœa of the authors previously quoted. It does not matter, they observe, what the initial symptoms are, diarrhœa from the outset, or dysentery, the clinical situation is the same in both cases—chronic entero-colitis is established.

Bertrand and Fontan on the relations of tropical diarrhœa and dysentery.

According to the authors the fully developed disease is characterised by the following symptoms:—The digestive functions are profoundly disturbed, the appetite is capricious, the sensation of taste is absent or perverted. The tongue, which is at the first coated, is sometimes the seat of pseudo-vesicles, principally on its edges, and

Bertrand and Fontan's description of entero-colitis.

CHAP. IV. on the lower surface on each side of the frænum.
— At this time the smooth bare tongue observed in the stage of final eachexia is seldom seen. The digestion in the stomach is impaired, and there is a sensation of weight in the epigastrium. There are nidorous eructations, with or without pyrosis. The abdomen is often distended by flatulence, and is sometimes sensitive to pressure. The patient complains of rumblings, and the evacuation of the stools is preceded by colicky pains, the discharge being frequently followed by a sensation of comfort. Tenesmus is absent.

The stools increase in number whilst their consistence diminishes. The patient goes to stool several times in the day or in the night; and the fæces, which were originally pasty or pultaceous, are thin, generally clear and of a soupy consistence. They may be for a short time entirely liquid. Their colour is variable—yellow, green, or blackish grey or slate-coloured when the patients are treated by subnitrate of bismuth. The commonest colour is bright *café au lait*. Frequently the motions are frothy and full of gas, but their true character is usually grumous, unequally coloured, and streaked, containing unchanged débris from the food when the

patient is not on milk diet,—in a word, lenteric. CHAP. IV.
Occasionally, according to the case, bloody mucus may reappear or be seen for the first time.

The authors give a special description of the buccal cavity and the tongue. In patients, they remark, in whom the disease begins by diarrhoea, and in which the progress of the case is sub-acute, the tongue is frequently covered with a yellowish coating. The sense of taste is absent, or the patients complain of a bitter taste in the mouth.

Bertrand and Fontan's description of the tongue.

In the chronic phases of the disease the appearance of the tongue may be quite normal for a long time; yet, when the patient has fallen into a cachectic condition, pseudo-vesicles commonly appear on the edges or the point of the organ, or at each side of the frænum, and on the floor of the mouth. These vesicles frequently burst, and become the origin of small, superficial, round ulcerations, which are sometimes very painful. Later the buccal epithelium comes away in small flakes, or undergoes an imperceptible exfoliation which lays bare the derma of the mucous surface. The tongue, everywhere laid nude, is then shiny red, smooth and shaven-looking, and has a varnished appearance. The

CHAP. IV. inside of the cheeks and lips becomes pale, and the soft palate often presents the same appearance. The mouth is hot and dry, there is great thirst, and the saliva is acid.

*Bertrand
and Fontan
on the
diagnostic
value of
tongue
symptoms.*

The authors state that they believe this to be the condition of the mouth which has been described by the European residents of Java, and by some English medical men, as "sprue." They decline to attach the same importance, from a diagnostic point of view, to the condition of the tongue and the buccal mucous membrane that has been assigned to it by the Dutch physicians; giving as a reason for not doing so that the change is not constant in the disease, and that they could quote a number of cases in which it never was present; and finally that a similar condition is met with in other diseases, such, for example, as tuberculosis. They refer to a case that had been under their care, in which an unhappy consumptive presented the same lesions in the mouth and tongue as those described in tropical diarrhœa. These lesions, they believe, are not of any value in making a diagnosis between dysentery and typical chronic diarrhœa. The smooth and bare tongue ought not, therefore, to be used to describe a disease, in the course of which it only

appears as a variable symptom. The expressions "sprue" and "sprew" are consequently bad, and ought never to have been admitted into medical nomenclature. CHAP. IV.

The authors refer to the difficult and even painful deglutition which is experienced when the mouth is the seat of the changes which they have described.

It is a singular fact that a disease having all the characteristics of psilosis linguæ was described by Dr. Hillary * as having prevailed in an epidemic form in the island of Barbadoes in the middle of last century. Cases of this affection which he observed in Barbadoes were characterised by a diarrhœa "in which the stools were whiter than is usual in jaundice, without any yellowish appearance in the skin and eyes, nor was there any pain in the region of the liver or the biliary ducts," and he describes them as essentially distinct from the cases of diarrhœa alba which were observed in the island. He believes that he is

A disease resembling psilosis linguæ described by Hillary at Barbadoes in 1776.

* 'Observations on the Changes of the Air and the Concomitant Epidemical Diseases in the Island of Barbadoes,' by William Hillary, M.D., London, 1766. This author seems to have been familiar with a diarrhœa not dissimilar to that which prevails in India now, and he refers to it under the names "diarrhœa alba" and "white flux."

CHAP. IV. the first to have described this disease, stating that it was unknown to authors, ancient or modern, who practised in hot countries. It had been seen in Barbadoes, although very seldom, for thirty years before he wrote. During the first four years of his residence he only saw one case; during the next three years he only saw three cases; but within the four years preceding the time that he wrote he had seen some scores of patients labouring under it. The following is his description:—"The patient who labours under this disease usually first complains of an uneasy sensation or slight burning heat about the cardiac or upper mouth of the stomach, which comes slowly on, and gradually increases and rises up the œsophagus into the mouth, without any fever, or the least feverish heat, or much pain attending it; most commonly without any observable intemperance or surfeit, taking cold, or any sort of fever or other disorder, which it can be attributed to, preceding it, or any manifest or immediate cause to which it can be ascribed.

*Hillary's
description
of the mouth
and tongue.*

"Soon after this burning heat, small pustulæ or pimples filled with a clear acrid lymph, no bigger than a pin's head, begin to rise, generally first on the end and sides of the tongue, and

sometimes on the palate and roof of the mouth and the inside of the lips; and soon after the thin skin which covers those pustulæ slips off, and the tongue looks red and a little inflamed, though not swelled, yet is almost raw like a piece of raw flesh, and is so tender and sore that the patient can eat no food but what is soft and smooth, nor drink anything that is vinous, spiritous, or the least pungent without acute pain, so that some suffer much from the want of proper food. In some a ptyalism comes on and continues a long time, which is so far from being of any service, or giving any relief to the patient, that on the contrary it drains and exhausts the fluids of the body, and greatly wastes and sinks them.

“ In this state they continue several days or weeks, and sometimes for months,—sometimes a little better, then worse again; and after a considerable time—sometimes longer and sometimes shorter—the pustulæ will disappear and the mouth grow well without any medicines or applications or any manifest cause, and continue so for several days or weeks. But soon after this the patient finds a burning heat in the œsophagus and stomach, attended with ructuses and some-

CHAP. IV. times vomitings, by which a clear acrid lymph or waterish phlegm, which is very hot, and most commonly very acid, is brought up; though in some few it is not so acid. This generally continues but a little time before a diarrhœa comes on, and continues a longer or shorter time in different patients, and sometimes for a longer or shorter time in the same person, and in some it continues for many weeks; and in all it greatly wastes their flesh and strength, and sinks their spirits very much. The diarrhœa, after continuing a longer or a shorter time, sometimes stops without taking any medicines or doing anything to stay it, and the patient thinks himself better for a short time, and sometimes for a longer time; but in general the acrid humour soon returns to the mouth again, with all the same symptoms, but somewhat increased or exaggerated; and after some stay there it removes from thence to the stomach or bowels again; and thus a metastasis of the humour from the mouth to the bowels, and *vice versâ*, is frequently and sometimes suddenly made, without any manifest or perceptible cause. Some chance time, though but seldom, after the disease has continued for a long time, it affects all the primæ

viæ from the lips to the anus at the same time, and excoriates the last. And I have observed one or two cases where the pustulæ appeared about the genital parts, as we sometimes find the aphthæ do, as Hippocrates observes ; and in one or two cases I observed it to break out like an impetigo, about the mouth.”

CHAP. IV.

Hillary goes on to explain that these patients have no symptoms of fever. His remarks on the metastases from the mouth to the stomach and bowels, and from these to the mouth again, and the consequent increasing emaciation deserve attention. “For when it is in the mouth, both it and the tongue are so excoriated, raw, tender, and sore that they can take no nourishment but such as is very soft, smooth, and mild and in a liquid form, without giving them exquisite pain ; and when it is in the stomach it gives a painful sensation, and a frequent gulping up or vomiting a little clear acrid, acid liquor, and their food also ; so that the stomach can retain and digest nothing but what is very soft, smooth, and light, and sometimes not even that. But when the humour falls upon the intestines it produces a diarrhœa with a sense of heat, and sometimes a griping (though the last not often), and some-

*Hillary's
description
of the
intestinal
symptoms.*

CHAP. IV. times with hot stools and a tenesmus, so that most of the juices run off that way, which greatly wastes and sinks the patient. These circumstances continuing, and the disease frequently changing from place to place, almost continually deprives the sick of their proper nourishment, whence a true atrophy is produced, which at the last either sinks the patient, or brings on a marasmus which soon ends in death." He points out the difference between this affection and true aphthæ, explaining in detail the difference between the two. He states that the disease continues with short intervals of being a little better, then worse again, for several years before it puts an end to life; and although some patients had died within the year, others had lived eight or nine years before it was fatal. He remarks that as this is a new disease we must give it some name. "Shall we call it an aphthoides chronica or an impetigo primarum viarum?" he asks. Those who are familiar with cases of psilosis linguæ cannot fail to recognise the disease in this description, and from the diagnostic point of view it is an important fact that Dr. Hillary, who seems to have been a physician of great experience in tropical diseases, singled it out as

distinct from the other forms of tropical and intestinal complaints with which he was familiar, and believed it to be new to medical literature. It is interesting to note that it does not seem even to have occurred to him that it might be a form of diarrhœa alba.

When I first wrote on this disease I was more familiar with cases from China than with those from India, and I followed previous writers in considering that psilosis or sprue was identical with the hill diarrhœa of India. That I was mistaken in this view was first brought home to me by an experienced medical officer of the army, who had spent many years in Bengal and on the hills in India. A near relative of his own was suffering from psilosis acquired in China, and I recommended her to go to the country and live with him for a month. He watched her case closely, and assured me that the disease was quite different from hill diarrhœa, of which he said he had seen and treated many hundreds of cases. He had never before had the opportunity of observing a patient suffering from the symptoms which characterised the illness of the relative whom I had recommended to his care.

*Hill
diarrhœa
and psilosis
linguæ et
muc. intest.
not identical.*

Subsequent experience of cases of hill diarrhœa

CHAP. IV. in patients who had come home from India satisfied me that it was possible to distinguish these two sets of cases the one from the other, and I have now come to the conclusion that, except in Ceylon, the Indian cases are almost exclusively cases of psilosis of the small intestine in which the tongue and mouth symptoms play only a secondary part.

*True psilosis
linguæ et
muc. intest.
occurs in
Ceylon.*

Although in cases from Bengal and the Bombay Presidency I recognise a form of tropical diarrhœa which appears to me to be distinct from psilosis linguæ et intestini, I observe in cases from Ceylon symptoms which are either similar to or identical with the spew of the Dutch. Cases 6 and 8 are examples of a disease acquired in Ceylon, which I consider to be true psilosis linguæ.

The "sore mouth of Ceylon" is a popular name for this disease, and shows that it has been differentiated by residents there from the diarrhœa of the Indian plains and the hill diarrhœa.

Dr. Drummond, of Talawakelle, Ceylon, has given special attention to this affection, and was good enough to write me a letter on the subject.

*Dr. Drummond on
"Ceylon
sore mouth."*

Referring to a case under his care, Dr. Drummond states that as soon as the patient tried to take ordinary food she got indigestion,

flatulence, and constipation. The mouth became painful and hot, and the throat sore, the pain being much aggravated by hot fluids. The saliva when tested was acid. Small herpetic red spots appeared on the edge of the tongue; the spots broke and coalesced, forming a neck or chain of ulcers along the edges of the tongue, from which they stretched to the centre. The tonsils were not generally affected, but the spots appeared on the roof of the mouth near the vault of the palate. When they were in the raw condition they were particularly irritated by hot curries, and while they lasted the patient suffered from flatulence and gastric pains. There was no fever, and the patient generally looked well. With the sore mouth the whole alimentary canal becomes tender. Diarrhœa is not necessarily a marked feature. In several cases Dr. Drummond noticed clay-coloured stools, which he regarded as symptoms of hepatic sluggishness. In another case he describes the stools as being semi-fluid, sometimes like Devonshire cream, frothy, and with a very offensive odour, and attended with scalding. As the disease gets worse the number of stools increases to six and eight daily.

He observes that this malady is apt to occur

CHAP. IV. in persons who have been fifteen or twenty years
— in Ceylon, and often follows diseases like typhoid
and dysentery; that it is commoner in women
than in men; and that it is worst during the
monsoon rains, and improves during a period of
dry sunshine. Cases were observed by him in
the mountains at an elevation of 4000 to 5000
feet.

CHAPTER V.

VARIETIES OF PSILOSIS.

CHAP. V.

WE are now in a position to consider more closely the question whether the spew of the Dutch physicians of Java, the Cochin China diarrhœa of the French, and the white diarrhœa and hill diarrhœa of the Indian writers is one and the same disease; or whether the condition of the intestine entitled to be called “psilosis” includes two or three, or perhaps more, distinct forms of intestinal diseases.

The various forms of tropical diarrhœa.

Sir Joseph Fayrer gives the authority of his opinion in support of the view that these various names are only different terms applied to one and the same disease. Bertrand and Fontan are of the same opinion, and consider the so-called diarrhœa of Cochin China to be the same malady as the Dutch spew and the Indian white diarrhœa. Roux, on the other hand, considers that the diarrhœa of Cochin China is a more severe disease than the Indian malady. Van der Burg,

Fayrer's views.

Bertrand and Fontan.

Roux.

Van der Burg.

CHAP. V. of Java, regards the Dutch “screw” as a special variety of intestinal disease, whilst Bertrand and Fontan believe that this variety has not been established as a distinct form, remarking that the descriptions given are not sufficiently precise, and that the attempt to establish screw as a special malady has originated in an exaggerated and mistaken importance given to the condition of the tongue.

Distinction possible.

I am not insensible to the weight of Sir Joseph Fayrer’s opinion, and to that of the French observers, but I am unable to follow them, and I believe the facts to be in favour of the opinion of the Dutch physicians. The question is by no means an easy one. I see cases in London which I diagnose as the “screw” of the Dutch, and it was to these cases more especially that in the first instance I proposed the name *psilosis*. I also see cases which I unhesitatingly differentiate from these, and diagnose as the diarrhœa alba or tropical diarrhœa of the Indian physicians, to which the term *psilosis*, with some qualifying adjective, is also applicable. Between the well-marked cases of either type I find no difficulty in making a diagnosis.

Difficult cases.

On the other hand, in cases which have lasted

for some time before I have seen them, the peculiar specific symptoms are occasionally blurred and lost, and I find it very difficult to satisfy myself as to which of the two categories I should have assigned them if I had seen the patients in the early stages. A similar difficulty occurs in many of the aged and elderly people in whom the symptoms develop for the first time after their return to England. The difficulty is specially marked in cases seen in the last stages, in which the patient, with a bare denuded tongue, is slowly dying from exhaustion. In such cases it is only by a well-ascertained history of the earlier symptoms that a differential diagnosis of this delicate kind can be made. The chief cause of this obscurity lies in the fact that, in both forms, when the intestinal canal is the seat of old-standing chronic disease, the wasted condition of the mucous membrane is accompanied by a wasted condition of the mucous membrane of the tongue. As malnutrition progresses, and as the disease continues, the epithelial covering of the tongue becomes thinner and thinner, until eventually the organ has no fur, and is either smooth and pinkish in colour, or is divided by shallow crevices into a number of shining fields of a pale colour.

CHAP. V.

In this defenceless state the tongue becomes sore where it is in contact with the teeth, and is therefore more or less raw round the edges and at the point. A similar condition may also lead to discomfort in the gullet. Exacerbations of soreness of the tongue may also in such cases be associated with an aggravation of the intestinal symptoms. Even in some of these patients I think it is possible to guess whether there has been a special diseased condition of the tongue associated with the early symptoms, or whether it has supervened on a wasting diarrhœa. I leave out of the question altogether the raw mouth and the aphthous condition of the tongue and mouth which sometimes precedes a fatal termination in other diseases. Bertrand and Fontan have compared the aphthous mouth of a patient dying from tuberculosis to the condition seen in the tropical disease, and have regarded them as similar. In this I am unable to follow them. I believe that physicians who have had an opportunity of examining well-marked cases of the Dutch sprew, which is the true psilosis linguæ, could hardly confound it with the aphthous mouth and tongue that are sometimes seen in the last stages of a wasting disease.

*Psilosis
linguæ
different
from the
aphthæ of
marasmus.*

CHAP. V.

If, however, well-marked examples of the two sets of cases are taken, a marked contrast is observed. In psilosis linguæ, the Dutch “sprew,” the condition of the tongue and mouth forms an early symptom; sometimes, indeed, it is the first marked symptom, and not infrequently is the one which in the consideration of the patient primes all the others. It is characterised by localised inflamed patches on the tongue, with frequently distinct herpetic eruptions on the soft palate, or with great irritability of the throat and gullet, occurring in patients who may or may not have diarrhœa, but who have dyspeptic symptoms and irregular action of the bowels. In a similar stage patients who are the subject of diarrhœa alba have a moist tongue, often furred, and sometimes covered with scant epithelium. They may have no uncomfortable sensations in the mouth, or the tongue may be tender round the edges where it comes in contact with the teeth, and at this stage the diarrhœa is usually of a more profuse kind than it is in psilosis linguæ. The symptoms of diarrhœa alba in this stage are mainly abdominal, whilst in psilosis linguæ the mouth and intestine are both involved, the predominating symptoms being sometimes in the

*Early mouth
symptoms
in psilosis
linguæ.*

*Mouth
symptoms in
diarrhœa
alba.*

CHAP. V. former and sometimes in the latter. The difference stands out very clearly when the descriptions of the Indian physicians are compared with those of the Dutch. I have already quoted from Indian accounts of white diarrhœa, and it will be seen that the tongue symptoms either are not mentioned or have received very scant notice indeed. If in this white diarrhœa of India the mouth and tongue symptoms had approached in any degree those observed by the Dutch, and by myself in one class of my cases, it is impossible to believe that they would have been so much overlooked.

It is with the object of furnishing data on which an opinion can be founded, more than of expressing a dogmatic opinion, that I have already given brief notes of two sets of cases published by Sir Joseph Fayrer (see p. 41). Amongst these cases is one which I consider a typical case of psilosis linguæ, in a patient who came from Amoy, in China ; and it will be useful to compare the description of the marked mouth symptoms in that case with the brief notices given of the tongue in the Indian cases. For the same reason I have related in this volume a sufficient number of cases in order that the facts may be put on record,

and that readers may judge for themselves. Those who wish specially to form an opinion on this important point may refer to my paper in the 'Medico-Chirurgical Transactions,' in which two typical cases of psilosis linguæ are related in full detail, in juxtaposition with two cases of so-called tropical diarrhœa in equal detail. These cases, and others which I have related here, illustrate fully the peculiar nature of the special inflammatory condition of the mucous membrane of the tongue and throat in comparatively early stages of psilosis linguæ. The fugitive nature of the localised patches, their rapid disappearance at one part of the mouth, whilst they develop in less than twenty-four hours on another, and the ease with which this condition can be distinguished from the smooth, denuded, beef-steak tongue that may be occasionally observed in the final stages of exhausting intestinal complaints, and especially in long-standing diarrhœa alba of the Indian writers, form characteristic diagnostic points.

Reference to cases published in the 'Med.-Chir. Trans.'

The three coloured plates with which this volume is furnished are added to it in order to illustrate some of the phases of what I consider to be the specially symptomatic inflammation

Reference to the coloured plates.

CHAP. V.

of the tongue. In none of these cases had the patient reached anything approaching a condition of exhaustion, to which the special wasting of the mucous membrane of the tongue could be attributed. The first two plates coincide with the fully developed disease, but not to the last stages of it, and both the patients could, at the time the drawings were made, travel and move about freely from one place to another. Plate III, which represents a more advanced stage of the disease, shows the condition of the tongue at a time when the patient, although the symptoms were severe and well marked, was still able to make frequent journeys to London from a distant suburb and to go to theatres, and was strong enough to do many injudicious things which led to grave consequences in the future. He was by no means in a state of marasmus, or even of great exhaustion; and the condition of the mouth is representative of a special, frank, and acute inflammatory condition, which might be considered idiopathic or symptomatic, according to the view which is taken of its independence of, or connection with, the intestinal disease. It was a case of true *psilosis linguæ et mucosæ intestini*.

I am not aware of a similar condition of the tongue which occurs in any other disease. CHAP. V.

If the literature which deals with the diseases of India and Cochin China is critically examined, it will, I think, be seen that there are many cases of diarrhœa in these countries, and particularly in India, which are not complicated with a state of the tongue similar to that which is portrayed in these plates. *Forms in which the tongue is not specially implicated.*

It is in order to make this matter clear that I have given brief accounts in the Appendix of the symptoms in a few patients whose cases I consider to have been undoubted examples of diarrhœa alba, and in which these symptoms suggest that the cause of the morbid condition is different from that of the psilosis linguæ of the China coast and of Java.

Cases which I see of Indian diarrhœa are usually of this kind, particularly if they come from Bengal or the Bombay Presidency, or the northern parts of India. Similar cases also come from Ceylon, but, as I have already stated, there also come from that island cases which in the main features closely resemble the psilosis linguæ of China and the Eastern Archipelago. These are recognised by residents in the hill districts *Indian forms.*

CHAP. V. of Ceylon, amongst whom the term "Ceylon sore
Ceylon "sore mouth" expresses a well-understood condition.
mouth." Cases of the latter affection which I have seen
 differ so much from the diarrhœa alba of Bengal,
 that it is difficult for me to imagine how the two
 classes of cases could be associated as belonging
 to the same type of disease.

Objection to Bertrand and Fontan's criticism of the in-
Bertrand completeness of the descriptions of the mouth
and Fontan's and throat symptoms, and therefore of their con-
criticism. sequent want of scientific value, do not, in my
 opinion, hold good with Sir Joseph Fayrer's
 Amoy case, with cases which I have related in
 the 'Medico-Chirurgical Transactions,' and with
 some of those related in this volume. By
 critically and carefully examining these cases it
 will be seen that whatever opinion may be formed
 regarding them, the reader will find sufficient
 data on which to base a decision.

As we shall see when considering the patho-
 logy of these diseases, Bertrand and Fontan,
 finding that the histological changes in the
 mucous membrane are of the same type in the
 whole class of these tropical affections, and even
 in dysentery, consider that there is no essential
 difference between them, and that the various

types depend on the part of the intestinal tube in which the morbid change chances to locate itself. But a similarity in the changes found in the intestinal mucous membrane after death does not necessarily imply that the cause of these changes is always the same. If the primary agent in provoking the inflammation and necrosis is a micro-organism, it is conceivable, and is not improbable, that different micro-organisms are concerned in producing these diseases, and that the varieties of these climatic diarrhœas are due to this being the case. Different micro-organisms may specially affect different parts of the intestinal canal, although the destructive effects which they produce may be similar. The two main forms of psilosis may therefore be due to two different micro-organisms, each of them being capable of producing changes in the parts affected of a very similar kind; whilst true dysentery probably has its special micro-organism, which finds its appropriate habitat in the large bowel.

CHAPTER VI.

PATHOLOGY.

CHAP. VI.

OUR knowledge of the pathology of psilosis is based on scant data, and we can only regard it as being still very defective.

A study of this part of the subject necessarily embraces the collection of any available information regarding the pathological changes in the intestine which have been described by the writers who have dealt with the diarrhœas of India and the extreme East, irrespective of the opinions entertained by the authors regarding the unity or the diversity clinically of these various forms.

*Grant
quoted.*

On referring to Dr. Chever's valuable book, I find that Mr. Alexander Grant, whose contributions to the subject of hill diarrhœa seem to have formed an important point of departure in this question, observes :

“ In some cases of wasting painless diarrhœa there are no organic lesions to account for death.

The bowels, like the body, are pale, blanched, and anæmic, or the coats of the intestines are strikingly atrophied, and in places diaphanous. This applies peculiarly to the small intestines, while there are leaden spots in the colon, which is easily lacerated.

“In other cases the mesenteric glands and the mucous follicles of the intestine are enlarged, and the calibre of the gut is narrowed in places, and the mucous membrane softened, pulpy, and hypertrophied, with serous exudation under it, or simply thickened, and in a red granular state.”

Goodeve* observes, “In some chronic diarrhœas, especially those with the white flux, in spite of the long duration of the disease, little or no change of the mucous surface is to be found. There is great thinning of all the coats of the small intestines, so that they are quite translucent, and there is doubtless atrophy of the glandular tissues. The mesenteric glands are generally enlarged and hardened in chronic diarrhœa, but especially in the white flux.”

*Goodeve
quoted.*

Goodeve, Aitkin, and Fayrer describe amyloid degeneration of the bowel in certain forms of diarrhœa.

*Amyloid
degeneration
described.*

* Art. “Diarrhœa,” ‘Reynolds’ System of Medicine.’

CHAP. VI.

Moore
quoted.

Moore, in his 'Diseases of India,' gives *post-mortem* appearances as follows:—"Bowels pale and blanched, coats of intestines atrophied, mesenteric glands and mucous follicles enlarged, mucous membrane soft, with serous exudations beneath, inflamed spots on the peritoneum, liver pale, hepatic abscesses rarely concomitant. When death has occurred at an early period from some other disease the intestines have been found contracted, with the mucous membrane thickened and corrugated; but when death has occurred later the coats of the bowels are attenuated, with lardaceous degeneration of the glandular structure. Similar degeneration has been found in the spleen."

Dr. McConnell of Calcutta, quoted by Fayrer, states that, so far as his experience goes, amyloid degeneration of the bowel is very rare among the natives of India.

It will be observed that in these accounts no cognizance is taken of any changes in especially localised tracts of the small bowel as distinguished from the condition in other parts, and that no histological account is given of the mucosa—omissions which render the descriptions of comparatively little value.

A thinned translucent condition of the small intestine seems to occur eventually in most of these chronic intestinal affections; but the existence of that condition does not explain the processes by which it has been reached.

CHAP. VI.

Fayrer, in Davidson's 'Hygiene and Diseases of Warm Climates,' states that "at a later period of the disease the coats of the bowel are found to be attenuated and diaphanous, and the seat of lardaceous degeneration, and there is occasionally ulceration of the ileum or colon."

*Fayrer
quoted.*

Roux, in his remarks on the pathological anatomy of tropical diarrhœa, gives a *résumé* of the work of Kelsch in the 'Archives de Physiologie' (1873, Nos. 4 and 5), in the following words:—"Formation of embryonic tissue and granulations between the Lieberkühn glands, giving to the surface the appearance of a granulating wound; deformity, simple or cystic dilatation, then atrophy, and finally disappearance of Lieberkühn's tubes, the epithelium of these glands taking no part in the process; thickening of the submucosa by the formation of new elements, which are sparse throughout the whole thickness of the gut, but abundant in the submuscular and submucous layers;

*Kelsch
quoted.*

CHAP. VI. hypertrophy and elimination of the follicular tissue, and substitution for this tissue of tubular glands, much dilated, and covered throughout with goblet-shaped epithelium. It is from these glands; and not from the follicles, that the mucus comes.’’

Mahé and others.

The author quotes Mabé to the effect that there is no ulceration in the large intestine, unless dysentery has complicated the disease.

Layet and Rufz de Lavison have not seen ulceration in the large intestine.

Views of Bertrand and Fontan.

A very full and authoritative account of the pathological changes found in the diarrhoea of the tropics is given in the important work of MM. Bertrand and Fontan. As this volume is a recent contribution to our knowledge of this difficult subject by authoritative representatives of the active modern French school, and as it also gives valuable, and in some respects new information, it will be useful if I give a short abstract of the views of the authors. The subjects of their observations were patients from Cochin China, Tonquin, and Formosa. After describing the condition of the abdominal organs, they remark that general atrophy of these organs is a constant fact, and that certain lesions of the

pancreas appear to them to have a direct relation to the gastro-intestinal disease. CHAP. VI.

At the autopsies which they made they found no definite anatomical change to support the idea of "sprue," as described by the Dutch and English writers, whose descriptions, they complain, fail in clearness and in agreement with each other. They found the œsophagus present to the naked eye some insignificant changes, such as a varnished and shiny surface veined with vascular ramifications, and sometimes small prominent granulations, best detected by the finger. Under the microscope the superficial epithelium was seen to be exfoliated, whilst the deep layers were in place and intact. The glands were usually healthy, but sometimes undergoing a process of colloid degeneration. The other elements of the œsophagus presented nothing abnormal.

The œsophagus (Bertrand and Fontan).

In the stomach they found, in eight cases out of sixty-seven, minute circular ulcerations, situated towards the pyloric end. In many cases the mucous membrane appeared remarkably healthy, provided the post-mortem examination had been made soon after death.

The stomach (Bertrand and Fontan).

They give a detailed and minute description

CHAP. VI.

of the histological changes which they have observed in this organ, and which they sum up as follows:—The stomach may be affected by the phenomena of chronic irritation analogous to those which are observed in the intestine. Embryonic proliferation of the mucous chorion and ulcerative folliculitis may occur. Sclerosed and pigmented parts, probably the ultimate stage of nutritive and circulatory troubles, may be observed.

The small intestine
(Bertrand and Fontan).

The small intestine is usually thinned. There are sometimes localised thickened *plaques*, more particularly at the termination of the ileum, in which case it is almost always associated with the presence of ulceration. Thinning of the intestinal tube is most marked in the jejunum and the upper three fourths of the ileum. This gut is generally pale, and has a shining, milky, and œdematous look. The valvulæ conniventes are usually large and infiltrated with serum. The submucous œdema, which causes swelling of these valves, is usually wanting in the intervalvular space. The villi are often invisible, and their flattening produces the varnished appearance of the mucous membrane. On the pale ground there are sometimes diffuse patches of redness, particularly in

the duodenum; but these red *plaques* are smaller and more rare as the tube descends. They reappear, confluent and of a bright colour, at the lower end of the ileum. In the majority of cases the red coloration is not uniform or diffuse, and is evidently formed by the injection of the capillaries. The parts subject to this injection are often very small, and are seen more particularly on the top of the valvulæ. This injection may be noticeable as simple red points on the grey membrane, which are to be distinguished from ecchymoses. Dark greyish-blue spots are to be seen towards the lower end of the small intestine, and when a number of these are together the bowel is usually thickened, the valvulæ thinned, and the villi absent.

In two hundred and eight post-mortem inspections they observed ulceration of the small intestine forty-four times. On account of their small size these ulcers are usually overlooked. They are almost always about ten to fifteen millimetres long, well demarcated, have sharp borders, are neither callous nor fungous, and may be deep and filled with false membrane. Their base is often formed by the muscular coat. Lenoir and others have observed them in the

*Ulceration
in the small
intestine
(Bertrand
and Fontan).*

CHAP. VI. duodenum. The authors have met with them from the pylorus downwards, but this is an exception. Usually they begin about a metre and a half above the ileo-cæcal valve. At first they are separated by a space of from fifteen to twenty centimetres, and going downwards they become gradually closer set, but they rarely exceed twenty to twenty-five in number in the whole small intestine. They are not more frequently placed on the side opposite to the insertion of the mesentery than at other points.

*Histological
changes in
the small
intestine
(Bertrand
and Fontan).*

The mucosa is generally little altered in the duodenum, such changes as are found being analogous to those observed in the stomach. The more superficial Brunner's glands are intact. The deeper glands are the subject of colloid or cystic degeneration. The submucosa shares in the general atrophy. The lymphoid tissue of the jejunum and ileum is the seat of infiltration, and at parts of ulceration. The lymphoid tissue chokes and breaks up the glands, and presses them against the muscularis mucosæ, or renders them cystic by blocking their orifice. The persistence of the basement membrane indicates clearly that there is no ulceration. The capillary vessels are enlarged and filled with

blood, and can be followed as far as the summit of the villi, which are broad and flattened.

CHAP. VI.

The Lieberkühn glands, which are interfered with by the embryonic proliferation, preserve an almost normal epithelium. The glandular epithelium may be seen to be disfigured and displaced by the lymphoid infiltration, and this may reach such a point that large surfaces are absolutely deprived of any organ of excretion. In the neighbourhood of the ulcerations these changes reach their maximum. The histology of the ulcer itself does not differ from that of the ulcers which are observed in the large intestine.

The other coats of the intestine share in these alterations, and the lymphoid infiltration extends more or less deeply towards the muscularis; nevertheless a portion of the submucosa frequently retains its fasciculi, and resists the destructive pressure. Where these changes have lasted a long time the submucosa becomes sclerotic, the fasciculi being compressed and opaque, and not fibrillated. The vessels have a thickened and rigid wall, and the connective-tissue cells have almost completely disappeared. The condition is one of sclerosis.

CHAP. VI.

The lymphatic system is the seat of numerous changes. The central chyloferous vessel is often invisible, being obscured by the cellular proliferation. The deeper vessels can be distinguished, and are found uneven in calibre, and their swollen vesicular epithelium almost blocks their lumen. In the neighbourhood of the ulcers a great number of these lymphatics contain pus.

The lymph follicles are always inflamed, but in a variable degree, eventually reaching the stages of pus formation and ulceration. The ulcers which are produced by this folliculitis have their base in the submucosa, but the amount of ulceration so caused is trifling. They may cicatrise, and a few, but very characteristic, cicatricial depressions may result.

The authors have never seen amyloid degeneration in this disease—a statement which should be compared with that made by several Indian authorities in a similar connection.

The large intestine
(Bertrand
and Fontan).

The size, thickness, and colour of the large intestine vary even more than those of the small intestine; some portions being thin, others—particularly the cæcum and sigmoid flexure and rectum—being hypertrophied and hardened. They found ulcers in the rectum in 70 per cent. of the

cases, and believe that the proportion is larger, as small ulcers may easily pass unobserved. The existence of these ulcers is regarded as the mark of a dysenteric bowel. They are usually confluent in the cæcum, where many of them are due to ulcerated follicles. They become rare in the transverse colon, and again increase in the descending colon and sigmoid flexure. Frequently the rectum is their special seat. They are found in various forms. 1st. Ulcers of multiform shape (*en jeu de patience*), measuring always several centimetres in diameter. 2nd. Furuncular ulceration, sometimes isolated and sometimes confluent. They vary in size from a millet seed to a pea, are generally brownish in colour or even black, and are surrounded by a red margin. Their usual position is on the summit of the folds of the mucous membrane, and they do not cause the intestine to be either thickened or hardened at the point at which they are situated. Microscopic examination shows that these furuncles are points of necrobiosis preparatory to ulceration. 3rd. Erosions seated on slate-coloured *plaques*, in the form of narrow fissures or small superficial abrasions, which may be easily overlooked. Microscopical examination shows in the

*Forms of
ulceration
in the large
intestine
(Bertrand
and Fontan).*

CHAP. VI. *ulcers en jeu de patience* the ordinary lesions of
Histology of the ulceration (Bertrand and Fontan). ulceration. Embryonic, and sometimes pus cells are infiltrated amongst the connective tissue and muscular fibres as far as the subserous peritoneal coat, marked inflammatory changes being found in the blood-vessels. In the furuncular ulcers the erosion is bounded by a layer of embryonic cells, under which the core of the furuncle is found. The mucosa and the musculo-mucosa have entirely disappeared. The core is impregnated with extravasated blood. In the formed ulcer there is suppurative phlebitis; in the necrobiotic process which precedes the ulceration there is only adhesive phlebitis, or, at the most, recent coagulation. In the erosions of the slate-coloured *plaques* the mucosa has not completely disappeared. The submucosa is thickened, and the musculo-mucosa projects into the mucosa. The slate-coloured appearance of the *plaques* is due to the presence in the upper parts of the mucosa of a great number of large, oblong, irregular pigmented cells infiltrated with green or black granules. The cause of the ulceration of the bowel is the elimination of the necrotic mass which is observed in the furuncular ulcers.

The authors conclude their account by stating that the furuncular or necrobiotic ulcer is the essential or primordial lesion of the chronic diarrhœa, as well as of the chronic dysentery of tropical countries. It is the gradual or total elimination of the necrosed point which causes the loss of substance; and it can be understood how all the forms of ulcers observed can be produced in this way, according to the quickness or slowness of the death of the tissue, and according to the depth which the abscess reaches in the wall of the intestine.

CHAP. VI.

*Summary
of Bertrand
and Fontan's
views.*

The ulcer itself they regard as consecutive to a chronic catarrh, which gradually destroys the mucosa and causes a true adenitis.

A part more or less deep is killed by a hæmorrhagic infarct, and the mucous membrane ulcerates in consequence of the elimination of the eschar. In short, chronic irritation of the mucosa, catarrhal changes (with or without suppurative folliculitis), infarct, necrobiosis, and ulcer,—such is the series in anatomical order, in which the last term, the ulcer, is as constant and almost as rapid in its course as the former ones.

Put briefly in my own words, I gather from a

CHAP. VI. study of Bertrand and Fontan's descriptions that their idea of the pathology of their enterocolitis is as follows.

The first morbid phenomenon is an inflammatory swelling in the connective tissue of the mucosa. This distorts and compresses the glandular elements, and leads to their exfoliation. Minute inflammatory foci are formed at various points, which tend to the death of parts of the tissues. These necrosed elements are thrown off, leading to superficial ulceration. During this process the lymphoid follicles may be specially affected, and may suppurate. This condition of submucous inflammation may take place at any part of the intestinal canal, from the stomach to the rectum, but there is less of it in the stomach and duodenum than in the other parts. The jejunum and ileum are more affected. Certain parts of the large bowel are specially liable to it.

There is nothing in their descriptions to show that they found the process to be modified in any special part of the intestinal tube, although it varies in degree in different situations. It is not a difference in the nature of the process, but in its localisation, that causes its symptoms to assume, clinically, the form of tropical diarrhœa

in one case or of dysentery in another. So far as the morbid appearances are concerned, they consider the process to be identical in both. CHAP. VI.

Before making any critical remarks regarding the pathological anatomy of the disease, as described by the authors whom I have quoted, it will be convenient to give an account of the changes which were found in two of my patients. Unfortunately, in neither case did I have an opportunity of observing the symptoms during the early or characteristic stage of the affection.

In one case the patient arrived in England almost moribund, and died very shortly after his arrival. In the other case the patient had recovered before arriving in England, and died from an acute relapse. The pathological changes found in both instances were so important that I shall describe them fully.

Histological changes found in two cases observed by the author.

The first case will be found related in the 'British Medical Journal' of June 14th, 1890.

A man fifty-seven years of age, after great exposure in the severe winter of the north of China, began to have occasional attacks of diarrhœa, and noticed that he perspired less than previously. Two years afterwards, in March, 1889, he had a severe feverish illness, after which

Clinical history of the first case.

CHAP. VI. the diarrhœa was very marked. He lost sixty-five pounds in weight in three months.

Dr. Henderson of Shanghai saw him in August of the same year, and found him suffering from severe diarrhœa, with liquid, pale yellow, scanty motions, sometimes very frothy and offensive, but containing no blood. The patient was thin, anæmic, and sallow. The tongue was pale, smooth and polished, with lines on the surface—no aphthæ.

Dr. Henderson saw him again in October, and found that the motions were soft, liquid, yellow, and offensive, sometimes pale, occasionally watery.

Mr. Lowe, who took charge of the patient on the homeward voyage, described the discharge as being loose, yellow, at times frothy, and often bad-smelling. The tongue he described as glazed and without papillæ. The patient arrived in England in a state of extreme exhaustion, and the diarrhœa had become greatly aggravated. He passed very frequent, watery, odourless motions.

On the inner surface of the lower lip there was an herpetic eruption, about the size of a fourpenny piece. He sank a fortnight after he landed.

During the short time that elapsed between

his arriving in London and his death, his mouth, and particularly his throat, were very sensitive, so much so that small quantities of champagne, from which he derived much relief, could only be swallowed when considerably diluted with water.

A post-mortem examination was kindly made for me by Dr. Wethered, who also undertook the histological examination of the tissues. It is not necessary to give a complete account of the post-mortem report, except in so far as it bears specially on this disease. The liver was soft and friable, but exhibited no change in structure. The spleen was soft, the pancreas rather shrunken. A small calculus was found in the bladder.

The post-mortem examination.

Digestive Tract.—The tongue was clean, the papillæ rather enlarged, and the epithelium in some places seemed to be absent. The walls of the œsophagus were a little thickened, but showed no other change to the naked eye. The stomach showed some post-mortem digestion, and its surface was covered with an excess of mucoid-like material. The intestines gave a peculiar velvety feel to the hand, as though there was some thickening of their coats, but this was afterwards shown not to be the case. The walls of the duodenum were thin, and the whole of its

CHAP. VI. internal surface was lined with a thick layer of mucoid material, which could be easily scraped off, leaving the mucous coat of the intestine exposed. The walls were so thin as to be per-

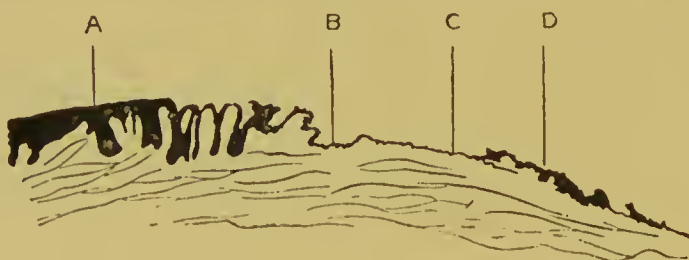


FIG. 1.—Vertical section through part of the tongue. A. Normal epithelium. B. Epithelium partially destroyed. C. A point where the epithelium has disappeared. D. Partially broken-down epithelium. (Low power.)

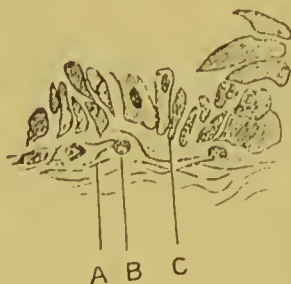


FIG. 2.—The part marked as B in Fig. 1, as seen by a high power. A. Connective tissue of the tongue. B. Leucocyte. C. Partially detached epithelium. (Hartnaek VIII, eye-piece 3, tube in.)

fectly translucent, and the finger could be distinctly seen through them. No other change was apparent to the naked eye. The jejunum and ileum showed similar appearances, the

characteristic features being the layer of mucoid-like material and the thinning of the walls. It

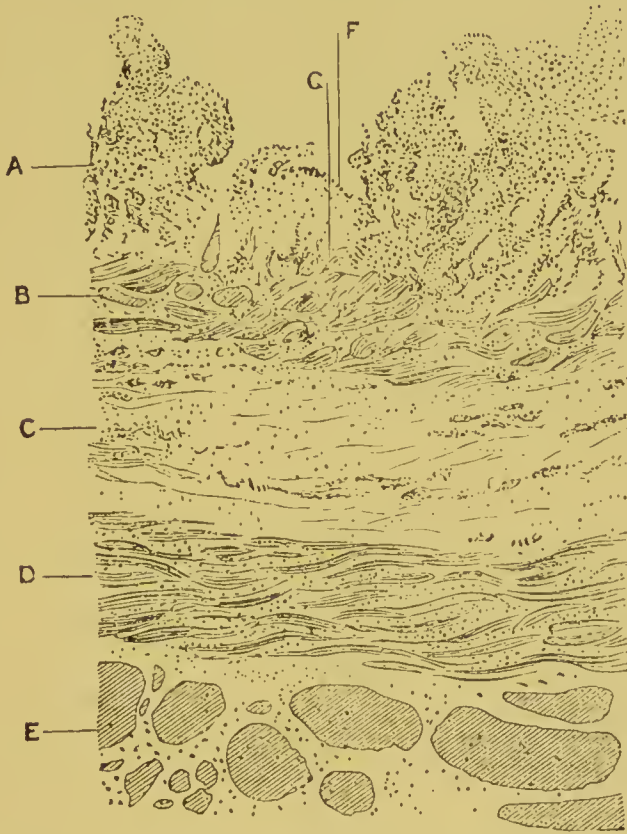


FIG. 3.—Vertical section through the œsophagus, showing the absence of the lining epithelium. A. Mucosa thickly infiltrated with leucocytes. B. Muscularis mucosæ. C. Submucosæ with leucocytes and connective tissue. D. Inner layer of muscle. E. Outer layer of muscle cut transversely. F. Inner layer of œsophagus. G. Point in the muscularis mucosæ. (00 Verick, eye-picce 4, tube out.)

was this layer that gave the peculiar feel to the intestines described above. Congestion was

CHAP. VI. absent, there being a few patches of injection only. The Peyer's patches could not be made out. Passing to the large intestine, similar

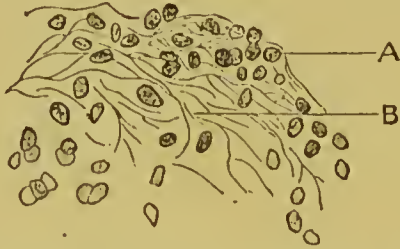


FIG. 4.—Portions of Fig. 3 more highly magnified. The point marked F in Fig. 3, showing that the œsophagus is lined by a granulation-looking tissue. A. Leucocytes. B. Connective tissue. (Hartnack VIII, eye-piece 3.)

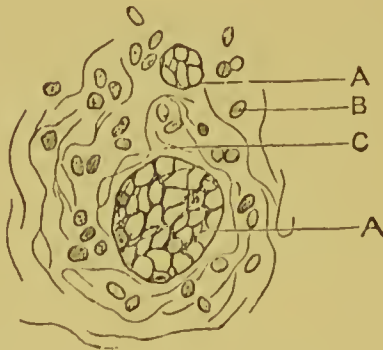


FIG. 5.—The point marked G in Fig. 3 more highly magnified, showing unaltered bundles of the muscularis mucosæ close to the surface. A, A. Bundles of involuntary muscle-fibre (muscularis mucosæ). B. Leucocyte. c. Connective tissue. (Hartnack VIII, eye-piece 3.)

changes presented themselves. In the rectum the mucoid-like material was very thick, and on gently scraping it off a few abrasions of the coats

were seen, exposing the muscular layer. Nowhere was there any trace of ulceration or deposit of fibrinous membrane.



FIG. 6.—Vertical section through the jejunum. A. Free surface composed of mucoid-looking unformed material. B. Lieberkühn's crypts unchanged. C. Connective tissue of mucosæ. D. Circular layer of muscular fibre cut transversely. E. External muscular layer. F. Crypt, showing first stage of destruction. G. Inflammatory focus in the mucosa. (Hartnack III, eyepiece 3, tube out.)

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*The
histological
changes
found.*

Microscopic Examination.—The portions of the intestine were thoroughly hardened in Müller's fluid, embedded and cut in celloidin, and stained

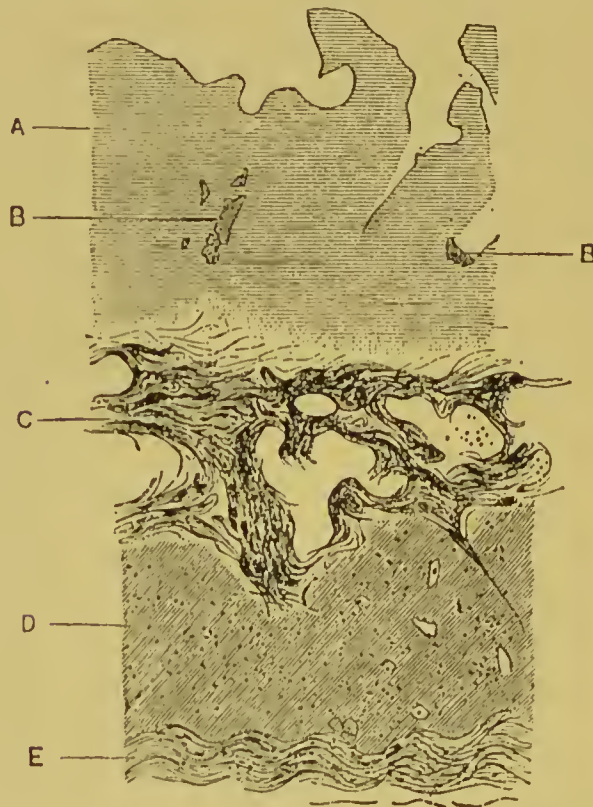


FIG. 7.—Vertical section through ileum. A. Unformed mucoid-like substance lining the gut. B. Remains of Lieberkühn's crypts. C. Strongly developed fibrous tissue taking the place of the submucosa. D. Circular layer of muscular fibres cut transversely. E. External layers of muscular fibres. (Hartnaek III, eye-piece 3, tube out.)

The tongue. with picro-lithium-carmin. *The tongue* (Fig. 1).—The epithelium was seen to be completely de-

stroyed in some places, the denuded area gradually passing into healthy tissue. The shedding of the epithelial cells is well seen in Fig. 2. The muscular layers seem to be quite healthy, so that the morbid process could not have penetrated

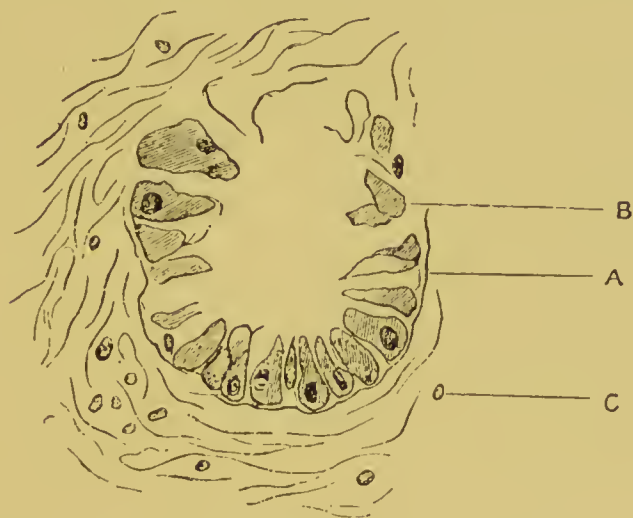


FIG. 8.—Remains of a Lieberkühn's crypt in mucoid-like substance lining the ileum. A. Membrana propria. B. Detached epithelial cell. C. Leucocyte. (The cells did not show evidences of breaking up, but there are evidences of loosening from the surrounding tissues.) (Vérick, immersion No. 12, eye-piece 1, tube out.)

deeply. *The œsophagus* (Figs. 3—5).—Very *The œsophagus.* marked and extensive changes were noticed here. The epithelium was entirely destroyed, and the mucosa densely infiltrated with small round cells. The inflammatory products were seen to have penetrated to the muscular layer; the sub-

CHAP. VI.

— mucous coat was thickly packed with exudation cells, and the glandular substance to a great extent destroyed. *The stomach and duodenum.*—
Stomach.
Duodenum. No abnormal changes were noticed in these.
Jejunum. *The jejunum* (Fig. 6).—Effects of the disease were again apparent here. Slight inflammatory action was noticed, as shown by the exudation cells and some destruction of the Lieberkühn's follicles. The epithelium of these seemed to be very little affected. *The ileum* (Figs. 7 and 8).—
Ileum. It is here that most marked changes were found. The mucosa was almost entirely destroyed, being replaced by a structureless substance enclosing leucocytes, and here and there the remains of a follicle. These remains are shown under a high power in Fig. 8, in which it will be seen that the epithelium lining the follicle is beginning to be detached. The submucosa appeared much thickened, and the fibrous tissue abundant and more than usually solid in consistence. The walls of the vessels were also thickened, altogether denoting a more chronic process than in other parts of the intestinal tract. The muscular layer was thinned. The *cæcum* and *rectum* showed no changes. Other sections were stained with methyl blue in order to search for micro-

organisms. As is usual with sections of intestine, some were found, but they were not more numerous than usual, and no distinctive grouping could be made out.

The pathological changes described by Dr. Wethered in this case throw a great light on the nature of the disease. With the œsophagus entirely stripped of its epithelium and glandular structures, it is easy to understand the pain that patients frequently experience in swallowing hot or acrid substances. Many of them find the passage of the food bolus from the throat to the stomach very painful, and one of my patients spent hours in trying to hawk up morsels of bread which would neither go up nor down, and which, in the light of the facts observed in this case, I believe to have stuck in the pockets of the gullet, unlubricated by the mucus which is required to smooth the downward passage.

*Symptoms
explained by
pathological
changes.*

In a similar way the diarrhœa and peculiar troubles of digestion find their explanation in the condition of the intestinal canal. As the stomach, liver, and pancreas were unaffected, it is reasonable to suppose that digestion must have taken place in the first instance; but as soon as the bolus reached the ileum, further digestion, in so

CHAP. VI.

far as it depended directly upon the condition of the gut, must have been arrested. As regards absorption, not only was the absorbing vascular surface practically destroyed, but the submucous connective tissue was converted into a thick sclerotic layer, which must have interfered with the absorbing functions of any of the deeper vessels that may have remained. The thick coating of mucoid-like substance which covered the free surface of the bowel must have prevented the contact of the contents with the mucosa, such as it was. This condition must have in itself seriously interfered with assimilation and nutrition, functions which in this disease are profoundly affected.

*The author's
second case.*

The second case is described in a joint paper by Dr. Wethered and the author in the 74th volume of the 'Medico-Chirurgical Transactions,' in a paper entitled "Symptoms and Pathology of a Case of Acute Inflammation of the Mucous Membrane of the Ileum from Climatic Causes."

*Clinical
history.*

The patient, who was a strongly built, muscular man, aged about forty, and possessed of an excellent constitution, had spent about twenty years in different parts of China. In October,

1888, when in the northern parts, he began to suffer from occasional attacks of diarrhœa, and although he spent the winter in the south of China, the tendency to diarrhœa continued, but the attacks were not so severe. Returning to the north of China in the early spring, he got a severe chill, which was followed by fever. During March, April, and May the fever frequently recurred, the diarrhœa became worse, and in June both the fever and diarrhœa became persistent. Medicinal and dietetic treatment not giving relief, he went to Shanghai, where the diarrhœa abated under a diet of beef juice; but the fever remained. Having lost forty pounds in weight in four months, he was ordered home, and during the voyage across the Pacific he lost five pounds more. He was sent to a hospital at San Francisco, in a state of great prostration, and still suffering from fever and diarrhœa. He was there treated by a diet of pure beef juice, squeezed from the raw meat. He improved rapidly, and in six weeks was able to continue his journey through America. In six weeks more his health was completely restored. He had gained thirty-six pounds in weight, and, with the exception of an occasionally loose morning stool, considered

CHAP. VI. himself quite well. When I saw him in April he seemed in perfect health.

About the middle of May he was chilled by sitting too lightly clad in the open air in the evening. This chill was followed by diarrhœa, disturbed digestion, and loss of appetite. Four days afterwards he consulted me, and I found that although he complained of abdominal malaise and irregular action of the bowels, he had no fever, and that the kidneys and spleen were healthy. There was no tenderness over the liver, and the area of hepatic dulness was only very slightly increased.

The tongue was of a dark red colour, cracked and furrowed, and quite free from fur.

Further exposure to cold, two days afterwards, produced great distress and fever. I saw him on the fourth day after this second exposure, and I found him suffering from profuse diarrhœa and severe retching, with a temperature of 103° . These symptoms continued for a month, with the exception of a fall in temperature for four days during the first week of the illness. Nausea, retching, and diarrhœa continued for a month, after which time hæmorrhage took place from the bowels, and in five days after the appearance

of the bleeding the patient sank from exhaustion. Although during the first days of his illness he complained of some abdominal pain, the tenderness was not great, and subsequently the sensations were mostly those of general discomfort. Firm pressure over the bowels, particularly over the umbilical region, provoked some uneasiness or pain.

The appearance of the tongue varied very little from the first, remaining of a dark red colour and free from fur.

During the whole course of the illness there was an absence of appetite, and suspension of the digestive functions. The temperature varied very little except during the four days referred to, there being a daily minimum of a little over 101° , and a night temperature of about 103° .

Dr. Sidney Martin was kind enough to make a post-mortem examination, for the details of which I refer to the original paper. I shall here only refer to what is important in the case—the condition of the intestinal canal.

The post-mortem.

The mucous membrane of the stomach was normal, the upper part of the jejunum mostly normal, although showing two or three superficial erosions about the size of a split pea. The mucous membrane of the lower part of the jejunum was

CHAP. VI. pigmented in dots, giving the "shaved-beard" appearance (chronic inflammation).

The mucous membrane of the ileum and of the large gut was covered with dark brownish-red and liquid blood; and on washing this away the exposed surface presented a worm-eaten appearance along the whole course of the ileum to the cæcum. The sinuous ulceration did not go deeper than the mucous membrane. In some places there were distinct erosions, about the size of a split pea. The ulceration increased as it descended the ileum. The mucous membrane was thickened generally, but the other parts of the gut were not affected.

The Large Intestine.—At the entrance of the vermiform appendix, the mucous membrane of the cæcum was thickened and slightly eroded. There were about ten superficial ulcers in the large intestine; five were grouped together, none being larger than half an inch long and a quarter of an inch broad. The edges were sharply cut, not thickened, and the base was formed by the lower layers of the mucous membrane and by the submucous coat. The mucous membrane was not generally thickened. One or two of the ulcers appeared to be in the solitary glands.

The mesenteric glands were not enlarged.

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Dr. Wethered made a complete microscopical examination of the organs. The liver, spleen, stomach, jejunum, and heart presented nothing markedly abnormal. A certain pale wedge-shaped mass described by Dr. Martin in the liver and spleen, consisted of localised, dense, small-cell infiltration around the vessel, and was regarded as the first stage of what would have become a pyæmic abscess.

Histology.

The mucous membrane of the large intestine was healthy, except as regards the small superficial ulcers situated close to the cæcum.

The histological changes showed that the disease was essentially an acute process in the mucous membrane of the ileum. In that portion of the small intestine no villi were seen in any of the sections, their surface being composed of an amorphous granular material. In the parts least affected Lieberkühn's crypts seemed to be unchanged in their deeper portions. Towards the extremities the epithelial cells stained badly, but did not seem broken up. Approaching the free surface they were lost in the layer of finely granular material which covered the surface of the mucous membrane.

*Histological
changes
found in
the ileum.*

CHAP. VI.

In the next stage the crypts were shorter, the lumen distended by a clear glutinous substance containing fine granules. The epithelial cells were sometimes broken-up and vacuolated. The shortened crypts ended in thicker layers of the granular material referred to. This showed that there had been atrophy of the epithelium with degeneration. Between the slightly affected crypts and the superficially ulcerated parts, the outlines of the crypts could be traced by the rows of disintegrated and partially destroyed epithelial cells. The nuclei of the cells refused to take on any stain, and the crypts were destroyed and disintegrated. In the stage of superficial ulceration all traces of the epithelium or crypts were gone, the free surface being composed of a thick layer of the granular material referred to. In the deeper parts of this layer leucocytes were brought out by dyes, and in the deepest parts of it they were present in dense groups.

When the whole thickness of the ileum was examined, it was found that small-cell infiltration was present in the submucous layer, very dense in the parts which were eroded, and partially and unequally in the parts which were less affected. Nothing remarkable was observed in the sub-

peritoneal layer or the muscular coats. Under the eroded parts a certain amount of cell infiltration was present around some of the vessels in the inner muscular coat.

Clinically this was an exceptional case. My information regarding the condition of the patient when he was in China was, unfortunately, imperfect, but I was informed by him that the case was there regarded as one of psilosis. The febrile condition which he informed me was present is unusual. He would seem to have suffered from a process in the ileum of an acute nature, instead of the condition without fever, which is common.

The duration of the illness in China, the nature of the symptoms during its course, and the emaciation, pointed to psilosis, with the sole exception of the condition of fever. The acuteness of the disease and the febrile temperature, although very exceptional features, did not point to any other recognised disease.

The acute attack from which he died was caused by the sudden supervention of inflammation in the mucous membrane of the ileum, which had been weakened by antecedent congestion. Although he had apparently recovered from that congestion and its results, the time which had

*Clinical
features of
the case.*

CHAP. VI. elapsed had not been sufficient for satisfactory repair to take place, and when the vessels became engorged from the effects of the chill, the enfeebled tissues were unable to free themselves from the products of the inflammatory process. An acute inflammation had implanted itself on a weakened and congested mucous surface.

The Indian writers have not described similar changes.

The descriptions of Roux, Bertrand and Fontan, and of the two cases related by myself, contrast in one respect markedly with the descriptions of the authors who have written on Indian diarrhoeas. The attention of these writers has been chiefly arrested by a thinned and apparently atrophied condition of the bowel. Fayrer alone remarks that there is occasionally ulceration in the ileum and colon, but does not give a detailed description of the ulcerated condition, nor of the cases in which it is found. The French writers, on the other hand, and especially Bertrand and Fontan, have described with great minuteness certain histological changes connected with localised inflammation, and terminating in ulceration, as the essential features of the disease. In the two cases described by myself there had existed in the one a long-continued chronic irritation of the mucous membrane of the ileum, leading to

destruction of the epithelial structures and to sclerosis of the mucosa; in the other the acute inflammatory condition of the whole mucous membrane of the ileum, if allowance is made for its intensity, recalls in its localisation and nature the changes described by Bertrand and Fontan, and by myself in the chronic case.

I do not attempt to reconcile these differences, nor do I wish to lay too much stress on them. If the descriptions of the Indian writers were to be taken as complete, it would certainly indicate a distinct difference between the intestinal affection common in India, Cochin China, and China respectively. I do not think it would be justifiable to draw this conclusion until future careful examination of the bowel in Indian cases, the tissues being prepared in such a way as to preserve the very perishable mucosa, and examined by the newer histological methods, should finally determine whether inflammatory changes in the mucosa are present or absent. But I wish to insist on the great importance of the localised inflammation which I found in my two cases. That the ileum should have been specially selected as the habitat of a morbid process, whilst the

*The ileum
selected by
the disease.*

CHAP. VI. cally free from it, is too remarkable a fact to be passed over without receiving special attention. That a few small, superficial ulcers were found in the large intestine, does not, in my opinion, diminish the importance of these observations. All the discharges and exudation from the inflamed surface of the ileum were constantly passing down through the large bowel, and it would have been a remarkable and almost incomprehensible fact if the surface of the mucous membrane, constantly bathed in these abnormal and irritating fluids, could have remained entirely free from injury. No one acquainted practically, or even by reading, with the pathological anatomy of dysentery, could for a moment have entertained the idea that there was any dysenteric inflammation in these cases. That a disease in the small intestine, localised in the ileum, and with certain special symptoms, exists, is, I believe, proved. It remains to be seen to what extent this disease prevails in the various countries where these affections are common, and whether this pathological condition is present in all the forms of so-called tropical diarrhœa; or whether it is confined either to a special set of clinical cases, or to defined geographical areas.

It is unfortunate that, in making their wide generalisation of the essential identity of dysentery and tropical diarrhœa, Bertrand and Fontan have not separated more completely in their descriptions of the pathological histology the cases that begin as simple diarrhœa from the cases that begin as a low form of dysentery, and in which the symptoms of chronic diarrhœa eventually predominate.

CHAP. VI.

The disease is pathologically distinct from dysentery.

I have recently had an opportunity of examining the tissues of a patient in whom a condition of chronic diarrhœa supervened on an attack of a low form of dysentery, and who died of an intercurrent disease. For more than a year after all the special symptoms of dysentery had disappeared, this man suffered from a slight form of diarrhœa, with occasional exacerbations and impaired nutrition; and, so far as the mere diarrhœa was concerned, it might have been considered doubtful whether the case could not have been considered one of Indian "tropical diarrhœa." The history of the case, and the general symptoms, did not favour this idea. The patient unfortunately got a severe chill, and died of acute nephritis. At the autopsy large ulcers were found in the descending colon and sigmoid

CHAP. VI. flexure, whilst the small bowel showed the thinned appearance with velvety feel which seems to be the usual condition after long-standing, exhausting bowel diseases.

The pathological anatomy of this case separated it entirely from such cases as the one which I have previously described at length.

Indian writers, at all events, are familiar with the pathological anatomy of acute and chronic dysentery, and whether they have noticed all the changes in the small intestine in their tropical diarrhœa or not, it is certain that they could not have overlooked dysenteric ulceration of the large bowel. The fact that they have not described in their cases of diarrhœa alba any dysenteric inflammation or ulceration, is sufficient to show that their cases were not those of dysentery in any sense of the word.

The question suggested by clinical experience as to whether there is a difference between the psilosis of the Eastern Archipelago, Java, the Straits, the Chinese coast, and Ceylon, and the form described by Indian writers as diarrhœa alba, must in the meantime be discussed chiefly on clinical grounds.

The only cases which I am able to utilise in

this argument from the pathological side are the two which I have already related ; and, unfortunately, there is this important void relating to them both, that I have not sufficient record of the early histories to enable me to state precisely that they were cases of the form of psilosis referred to by the Dutch as sprue. The presumption is that in both of them this was the case, but I am not able to give ample proof. In the chronic case there was, in addition to the morbid changes specially localised in the ileum, a stripping of the epithelium—a complete psilosis—of the whole œsophagus. I am not aware that this has been found in any other case, or described before.

*Condition
of the
œsophagus
emphasised.*

It is noteworthy that Bertrand and Fontan state that in the disease which they describe the superficial epithelium of the gullet is exfoliated, but that the deep layers are in their place and intact ; that the glands are usually healthy, but sometimes in a state of colloid degeneration ; and that otherwise there is nothing abnormal. Considering the number of cases which Bertrand and Fontan examined, it seems almost certain that such specially severe localised psilosis of the œsophagus does not occur in the form of diar-

*Bertrand
and Fontan's
remarks
regarding
the œso-
phagus.*

CHAP. VI.

rhœa with which they were occupied; and although I have only observed it once in a histological examination, I can recall other cases, one especially, in which, judging by the clinical symptoms, I have little doubt that a similar condition would have been found.

It remains, then, for pathological research in the future to ascertain whether, in addition to a special localisation in the ileum, there is a type of intestinal disease, a form of psilosis, in which the epithelium of the gullet is attacked by destructive inflammation.

CHAPTER VII.

ÆTIOLOGY.

UNFORTUNATELY very little can be said of the CHAP. VII.
ætiology of this remarkable disease. The cause
of it is, up to the present time, unknown. I do
not discuss the question as to whether it is mala-
rial, because I cannot imagine that physicians
experienced in malaria and in this disease could
possibly confound them. That it is not a mere *Not*
malarial.
Not simple
degenera-
tion.
degeneration of the mucous membrane from age
or exhaustion is evident from the fact that the
young and strong and new arrivals in the coun-
tries in which it occurs are attacked by it, and
that although it usually comes on insidiously, it
may set in suddenly and acutely. That it must
possess a *causa vera* is evident from a considera-
tion of the laws that govern recovery from
disease.

The tendency of simple congestions and in-
flammations produced by a disturbance of the
balance of the circulation, either in strong or in

CHAP. VII. delicate persons, is to recovery. If a man in the prime of life, and living in fairly healthy conditions, does not recover from a congested mucons membrane, it may be inferred that some cause continues to act injuriously on the membrane. If the cause is removed, in the ordinary course the congestion would heal. If the congestion is so intense that the healing is long delayed from its mere intensity, or from the amount of injury which has been produced, it is clear that the cause of the congestion must have been of unusual virulence.

Inferred that it is caused by some special noxious agent.

Bowel disorders, produced by cold and improper food, are common enough in temperate countries. But in these countries patients who do not die from the acute attack, as a general rule, soon recover. I have not met with a case of psilosis in a person who had never been out of England. It appears, therefore, to be a legitimate inference that some noxious element is introduced into the digestive tube in countries where psilosis prevails, and that this substance, whatever it may be, exercises an injurious influence on special parts of that tube.

Not due to heat.

This disease, although peculiar to certain tropical countries, is not caused by heat. There

are many tropical regions in which there is no evidence that it occurs. It is stated on the authority of the French physicians that it is not met with in Senegal, for example. It does not seem to be met with by English practitioners on the west coast of Africa, nor have I been able to get evidence that it exists in British Guiana, a typically tropical country. It is not caused by simple alternation between heat and cold. As regards variations in temperature, the climate of Central and North China is not dissimilar to that of the south of Europe, a hot summer being followed by a comparatively cold winter; yet this disease is not uncommon in these parts of the China coast, but it does not appear to occur in the countries bordering on the Mediterranean.

The effects of diet in curing or in aggravating this disease suggest very strongly that it is caused by some abnormal ferment in the intestinal canal. How else is it to be explained that whilst a patient is being supported on what, in most acute affections of the intestinal canal, are found to be the most digestible and least irritating foods, in this disease the symptoms continue severe and progressive; whilst on an exclusive milk diet, in many cases within a few days the symptoms disappear entirely.

*Probably
caused by an
abnormal
ferment in
the intestine.*

CHAP. VII. The patient who on milk diet is passing formed motions, whilst his inflamed tongue is healing with the greatest rapidity, if he takes even once chicken broth, or beef tea, or arrowroot, or a raw egg, will often have an immediate and severe relapse. The only explanation that occurs to me for this remarkable fact is that a ferment which does not find its pabulum in milk finds it in flesh broths, in farinaceous food, and in eggs. The tendency of modern inquiry and of knowledge indicates very strongly that such a ferment might be found in a bacterium. Up to the present time, however, that has not been proved to be the case, but no consecutive or sufficient observations in this direction have, so far as I know, yet been made.

The hypothesis favoured by the anæmia.

The hypothesis of an abnormal ferment in the intestinal canal producing some poisonous product might explain why these patients, if the disease has continued long, suffer from such extreme anæmia, and would also explain how this anæmia diminishes as soon as the symptoms of psilosis are checked by milk diet. The anæmia is, in many cases, out of proportion to the malnutrition; and the rapid increase in the number of red corpuscles under milk diet is more easily explained by assuming that a destructive blood-

poison ceases to act, than by supposing that a limited amount of nutrition by milk has a special virtue in leading to a rapid formation of red blood-corpuscles. CHAP. VII.

In the first edition of this work I gave an account of some attempts which I had myself made to obtain some information on this subject. In the stools of the patient whose symptoms are described in Case 1 of that and of the present edition I isolated a number of organisms—cocci and bacilli. One of the bacilli produced various shades of greenish yellow in the culture tubes; but after two months it had lost its vitality, and could no longer be cultivated. A small bacillus liquefied the gelatine rapidly, and when the patient's symptoms were worst this bacillus was comparatively most largely represented. Amongst the bacilli was a "comma" bacillus, which was not isolated. In a case described by me in the seventy-fifth volume of the 'Medico-Chirurgical Transactions' Dr. Wethered examined microscopically a soft, creamy, somewhat consistent mass, passed as the latter part of a motion in a case which was under milk diet. This mass consisted, so far as its solid elements were concerned, apparently of an almost pure *The bacteria in the stools.*

CHAP. VII. cultivation of bacteria. These bacteria, which were found in several examinations, consisted mostly of a rod-shaped bacterium, of what might be described as intermediate size, with a very few large thick bacteria.

This patient for a period of months passed daily a mass of bacteria as the latter part of the stool, often as much as a coffee-cup full, sometimes more and sometimes less.

As the disease abated this bacterial mass decreased in quantity, and with the disappearance of the disease and the appearance of colour in the motions it entirely ceased. The solid motion also contained a large quantity of bacteria.

In another case (the second case in the same volume) microscopic examination of a similar creamy or pasty mass showed that it consisted largely of rod-shaped bacteria, very similar in size and general appearance to those described in the previous case.

Dr. Macfadyen's observations on the bacteria in the stools.

Dr. Macfadyen examined the stools of a case of "tropical diarrhœa" sent him by Sir Joseph Fayrer. The fresh, unstained specimens were crowded with micro-organisms, and it was noted that one special form of bacillus predominated over the others. The stained specimens likewise

showed that one form of bacillus predominated. It was about the size of the anthrax bacillus, though somewhat thicker; its ends were flattened, and it was motile. The *Bacterium coli commune*, which is well represented in every normal stool, was only present in small numbers. A search was also made for amœboid organisms, but none were found. Cultures were made from the stools, and it was found that the *Bacterium coli commune* present on the gelatine plate was much below the average which is found in normal conditions. The bacillus with flattened ends, already described, was isolated. It grew well in the gelatine, in which it produced large gas bubbles.

Bertrand and Fontan remark that in the chronic endemic enterocolitis of the tropics the motions—to which they do not attribute any characteristic value. As soon as the stools become green the bacteria disappear *en masse*.

*Bertrand
and Fontan
on the
bacteria of
the stools.*

Nothing definitive can be concluded from the microscopic examinations to which I have referred; but in view of future examinations, which will undoubtedly be made, it is convenient to put them on record.

In the first case described in my paper in the

CHAP. VII. 'Medico-Chirurgical Transactions' Dr. Winter Blyth made a chemical analysis of the stools of the patient who, on exclusive milk diet, was passing one partly solid, partly soft motion daily, about a coffee-cupful of a creamy bacterial mass being passed with the formed part of the motion.

*Composition
of the fæces.*

The main peculiarity of the fæces was the absence of the colouring matter, hydrobilirubin, and the large quantity of fatty matter. The whole mass consisted practically of bile acids, fats, and ash.

In the fæces from a case of "tropical diarrhoea" examined by Dr. Sidney Martin,* the chief point noticed was that there was a large proportion of fat in relation to the total solids, and a small quantity of bile (diminished by more than one half).† Bilirubin was present in an unaltered form; only traces of the bile acids could be obtained. In both the cases of true psilosis linguæ (from China) described by me in the 'Medico-Chirurgical Transactions' the exhibition of iron did not produce the ordinary black iron stools, showing the absence of sulphides usually present in the motions when iron is given.

* 'Hygiene and Diseases of Warm Climates,' Davidson, p. 533.

† It should be remembered that in these cases after the diarrhoea has lasted some time the liver becomes much smaller than it is normally

The white stools of psilosis are very suggestive as regards the large question of the significance of colourless or white stools in disease. It is usually assumed that a white motion shows an inactive liver.

There is, of course, no doubt that absence of bile in the motions causes white stools; but it seems equally certain that there may be white stools without the absence of bile. In the 72nd volume of the 'Medico-Chirurgical Transactions' Dr. Walker has related cases in which the motions were white, although the liver was found post mortem to be healthy, but pancreatic juice was entirely wanting. Dr. Walker's inference was that the brown colour of healthy stools is caused by the action of pancreatic juice on bile; his theory being that the portion only of the coloured constituents of the bile which has been converted into hydrobilirubin is excreted in the fæces; while bilirubin, bilifuscin, and biliverdin not so converted are absorbed, and that the colouring matter of the fæces—hydrobilirubin—cannot be produced without the aid of the pancreas.

*Significance
of white
stools.*

*Dr. Walker's
theory.*

Moore ('Diseases of India,' 2nd edition, p. 171) states that those who, like Inman, maintain that

*Inman's
theory.*

CHAP. VII. the brown colour of the stools is not due to bile, but to some secretion of the colon, have regarded white diarrhœa as a result of a disordered condition of the latter organ, and that the dark colour of the fæces of the colon is due partly to absorption of lighter coloured matter, partly to exposure to the greater amount of gas, and to the peculiar gases generated in the large intestines.

White stools may occur with healthy liver and pancreas.

The white stools of psilosis show, I believe, that the fæces may be destitute of colour, although both the liver and the pancreas are healthy. In that disease the solid motions that are passed for weeks and months after recovery begins may be destitute of colouring matter, although there is no evidence of any affection of the liver or pancreas. The liver is usually small, but that is simply due to the long-continued diarrhœa. When recovery takes place it again reaches the normal size. The skin and conjunctiva are free from jaundice throughout; the urine does not contain bile, and in the post-mortem cases observed by myself the liver and pancreas were both found healthy. Nor is there any evidence to show that either of these organs is implicated in the form known generally as "tropical diarrhœa."

As regards the pancreas, no apparent free fat

was observed in the stools in the case examined by Dr. Winter Blyth, and his analysis showed that a large proportion of the milk fat consumed by the patient was digested. On the 28th of July this patient consumed sixty grammes of milk fat. The following morning the motion contained only fourteen grammes of milk fat, and it is therefore evident that forty-six grammes had been digested during the previous twenty-four hours (not allowing for decimal figures). This does not indicate any want of pancreatic secretion. Further, Dr. Blyth's analysis showed that in a typical case the elements of the bile were present in the stools. Patients in whom the liver and the pancreas are both exercising their normal functions may, over a period of months, pass formed colourless stools, although taking a diet compatible with health and strength, and with which the brownish-yellow colour of the stools is usually associated. When the patients who pass solid white motions get an attack of diarrhœa, the liquid motion is usually pale yellow, showing that the colourless motions are not due to original want of colour in the food mass, but that the colour is destroyed in the lower bowel. In this connection it will be useful

CHAP. VII.

*Observations
in a case of
fistula of
the ileum.*

*Reaction of
the food
mass and of
the mucosa.*

to refer to a valuable paper by Allan Macfadyen, M.D., M. Nencki, M.D., and M. Nieber, M.D., entitled "Research into the Chemical Processes in the Small Intestine of Man." These observations were made in a case of fistula of the ileum at the part where it joins the cæcum, to test the reactions of the mucous membrane both of the ileum and of the adjoining part of the large intestine. They found in this case that the normal reaction of the food mass passing into the cæcum was acid, whilst the mucous coat of the cæcum reacted alkaline. The alkaline reaction of the mucosa was increased in the colon, whilst that of the chyme did not begin until the food had passed into the large intestine through the ileo-cæcal valve, which suggests that an important and hitherto unregarded function of the intestinal mucosa is the supplying of alkali to the chyme. "An adequate neutralisation of the acid intestinal contents is of essential importance for the normal digestion in the small intestine. Should the mucous membrane furnish too little alkali, a hyper-acidity of the intestinal contents must consequently ensue, whereby the separated mucin, instead of becoming mixed with the food mass, is immediately precipitated on the intestinal mucous

membrane. In the same manner, also, the bile acids would be precipitated. Digestion and absorption must thereby suffer."

CHAP. VII.

Now my own observations and those of Bertrand and Fontan show that in these cases the mucous membrane of the ileum is so diseased that its normal secretion must be absent, and there must therefore be an absence of the alkali which is needed to neutralise the acid intestinal contents. There will thus be an abnormal acidity of the chyme during the whole of its passage through the ileum, and when it is discharging into the colon. An abnormal acidity must interfere with the normal development of the bacteria in the small intestine, which these observers state decompose the carbohydrates, and the food mass discharged into the large bowel will not have undergone the changes which usually take place before it leaves the ileum. The fæces of healthy and usually of sick persons have an alkaline reaction ; but in the case of my patients in whom I have examined the reaction of the fæces, I have invariably found them acid.

Effect of the diseased mucosa on the reaction.

It may be taken for granted that the bacteria of an acid bowel will differ from the bacteria of an alkaline bowel, and it is probable that it is in the

Probable effect of changed reaction on the bacteria.

CHAP. VII. abnormal bacteria of the acid large intestine that the cause is to be sought for the absence of hydrobilirubin, the ordinary colouring matter of the stools, and that the same diseased process in the ileum which is probably the cause of the disappearance of the normal colour of the stools, is also the cause of the dyspepsia, malnutrition, and diarrhœa. The appearance of the yellow and yellow-brown colour of the formed stools, I consider to be the best evidence that the disease is cured.

For more detailed information regarding the chemical analysis of the stools, and for a summary of the changes of colour observed during convalescence in a series of cases, the reader is referred to the paper in the seventy-fifth volume of the 'Medico-Chirurgical Transactions.'

CHAPTER VIII.

TREATMENT.

CHAP. VIII.

*Treatment
dietetic.*

THE treatment of all forms of psilosis is mostly dietetic, and in the majority of cases an exclusive milk diet is found to be the best means of securing a satisfactory and permanent cure. This remark applies equally to many cases of chronic dysentery, and probably to a large class of cases of intestinal disorder in which milk has not yet been sufficiently tried.

The first case of psilosis in which I recommended exclusive milk diet came under my care in 1877. The subject of the disease, a man in the prime of life, in whom the severe symptoms developed after his return from China, had been more than a year under my treatment, and during this time he had got steadily worse. It was not to be wondered at, therefore, that he withdrew from my care, and placed himself, for nearly two months, under the advice of a well-known so-called "homœopathic"

*First case
treated by
the author
by milk diet.*

CHAP. VIII. practitioner. At the end of that period, finding himself no better, he returned to place himself again under my care. He had been treated by the homœopathist by the same drugs and on the same principles which would have been recommended to him by the great majority of medical men—bismuth, farinaceous foods, &c. His weakness at this time became so extreme that I feared for the immediate result of the illness, and ventured to place him on strict milk diet. The results were marvellous, the diarrhœa being checked within a few days. He was able to increase the quantity of milk with unusual rapidity, and to attend to an onerous and responsible business in the city. His recovery was uninterrupted and complete. Although I advised exclusive milk diet in these cases from 1877 onwards, my first published recommendation of the treatment was in a paper in the ‘Practitioner’ for 1883, vol. xxi, p. 169.

*History of
treatment by
milk diet.*

Sir Joseph Fayrer recommended milk treatment in the tropical diarrhœa of India, in his ‘Lettsonian Lectures’ of 1881, and tells us in Davidson’s ‘Hygiene and Diseases of Warm Climates’ that he began this method of treatment in India, before returning to England, in 1872. For some

years previously, exclusive milk diet in the treatment of diarrhœa, particularly the diarrhœas of hot countries, was known in France. Fleury revived the practice, and recommended it in 1871, and its use in chronic diarrhœa, chronic colonial diarrhœa, and chronic dysentery in hot countries, forms the subject of no less than three Thèses de Paris in 1873.* Other French writers, of about the same epoch, are referred to in this connection by Bertrand and Fontan.

There are difficulties connected both with taking and assimilating milk diet on the part of some patients. Various methods of administering it have been recommended in practice. My own method is always, in the first instance, to endeavour to get the patient to take pure, fresh milk, undiluted and unaltered, not even boiled. Having decided on the quantity of milk that I think it well to begin with in a given case, I recommend this quantity to be taken between 7 o'clock in the morning and 10 o'clock at night, and when the quantity ordered is small, I advise a tenth part of the total quantity to be taken every hour and a half. If, for example, I order five pints of milk for the daily consumption, I recommend the

CHAP. VIII.

*Method of
giving the
milk.*

* Bertrand and Fontan, p. 340.

CHAP. VIII. patient to take half a pint every hour and a half. If the quantity given is larger, the interval between the doses is shortened. If seven and a half pints were to be given, half a pint should be taken every hour. If a still larger quantity is required, the patient is directed to take the milk still more frequently. I do not recommend his taking more at one time than half a pint. He is directed to drink his milk very slowly, spending, when practicable, from five to ten minutes over the consumption of the dose. Prolonging the interval and increasing the quantity taken at one time, does not help the digestion of the milk. If there is any difficulty in taking the quantity into which the doses are divided, it can be subdivided, and half the quantity given, the intervals being diminished by one half. I have not found that patients have had any difficulty in taking milk in this way, and I am certain that digestion is facilitated by its being given with great punctuality, and at regular intervals. When the patient is strong enough to move about, he is prone to transgress the regulations laid down, and is very apt to pass an interval and make it up by afterwards taking a double quantity at one time. I strongly deprecate this practice, and prefer that the patient should lose

the quantity that has been omitted, rather than take an increased amount to make up for the omission. CHAP. VIII.

It is needless to say that unusual precautions should be taken regarding the quality of the milk. On this point a very watchful eye must be kept. It has happened that when a patient was not doing well, the cause was in the perverted milk taken, and that a change to another dairy was followed by immediate improvement. Specially to be guarded against is milk to which preservatives have been added to make it keep. The milk should always be fresh. I do not allow the milk to be drunk quite cold; in cool weather the glass that contains it should be placed in warm water sufficiently long to take the chill off, but not to make it tepid. If the patient is very exhausted, and has not sufficient circulation to produce reaction, the draught of cold milk may cause considerable discomfort, and be followed by indigestion.

*Importance
of the milk
being fresh
and pure.*

I do not object to boiled milk if the patient prefers it, or if there is any reason to fear the unboiled milk, or if on account of not obtaining the supply sufficiently often it is necessary to boil it in order to make it keep. But boiled

CHAP. VIII. milk, as a rule, is not relished so well as fresh milk, and therapeutically has no advantage over it. Patients who have for some reason taken boiled instead of fresh milk have, however, done as well as those who have taken fresh milk; but my experience with boiled milk is not large. Diluted milk I have not given, and I have very rarely added lime-water or soda to milk, and have only done so when symptoms of acidity were unusually marked. Peptonised milk is much recommended by some practitioners. I have not found it of any special advantage in this disease, and it is not relished so well by patients. When it is considered that most patients have to be a considerable time on milk alone, and that it is so important that they should take it with relish, it is desirable that they should have the milk in the form that is most agreeable to take; this, in the large majority of persons, is in the form of fresh milk without addition or change.

There are cases in which there is a natural repugnance to milk. Patients tell us that they have never been able to take milk, that when they took it they could not digest it, and that they were made ill by it. Some of them begin by declining the treatment, and demanding that some other

treatment must be tried. With patience and perseverance this difficulty can, I find, be got over. CHAP. VIII.

For some time I tried koumiss in these cases, *Koumiss.* but I found that it was not sufficiently sustaining. Within a quarter of an hour or twenty minutes after taking a tumblerful, the patient experienced hunger or a feeling of sinking, and called out for more nourishment, and it was manifestly impossible to give a sufficient quantity of koumiss every quarter of an hour without upsetting the digestion.

Following out a suggestion made by Surgeon-Major Goldsmith, to aërate milk by charging it with carbonic acid gas,* I have been able in some cases to get over this difficulty. The aërated milk has a tart flavour, and can be taken by patients to whom milk in the ordinary way is repugnant. I have found that in some cases aëration facilitates digestion, and aërated milk has the great advantage over milk mixed with aërated waters that it is not diluted to an inconvenient extent. If milk is much diluted it is impossible, in cases of great exhaustion, to give the patient sufficient nourishment. *Aërated milk.*

To prepare aërated milk, Surgeon-Major Gold- *How to prepare aërated milk.*

* 'Brit. Med. Journ.,' July 1st, 1893, p. 12.

CHAP. VIII. smith recommends the use of an ordinary seltzogene. The method is as follows :—(1) Boil the milk, and add a small quantity of bicarbonate of soda. (2) When cold, pour it into the lower globe of the seltzogene, insert the plug of the seltzogene, and pour into the upper globe successively—(a) the tartaric acid in largish crystals (to produce gradual solution); (b) bicarbonate of soda; and (c) about four ounces of water. (3) Remove the plug, and screw on the top of the machine quickly.

Note that if any milk finds its way into the upper globe, the solution of acid and soda will bubble over into the lower chamber, and the whole of the milk will be spoilt. The printed direction given with the seltzogene will show the amount of the ingredients required to charge each particular size. Great care must be taken to scour out the machine after use. A strong solution of washing soda is useful for this purpose. When washing out the tube and top, by means of a syringe, the tube and globes should be allowed to soak for several hours.

In very hot weather, milk will not keep good in the seltzogene for twenty-four hours; during that time, therefore, it must be prepared twice

daily. At other seasons, what is prepared in the evening will remain good for the whole of the next day. CHAP. VIII.

The milk is ready for use four hours after being prepared. When it is first drawn off it is quite still, though loaded with gas; the latter portion comes out as light foam, about two ounces of which are equal to a little over an ounce of milk. An occasional gentle shaking increases aëration.

I have found this method of Surgeon-Major Goldsmith's of very great value in several difficult cases. In one case where milk diet seemed impossible, aëration enabled me to get over the difficulty and bring about recovery, after other methods of treatment had failed. Whenever, therefore, it is found that a patient cannot take natural milk, I advise that he be put to bed and fed with aërated milk, even if for the first few days only very small quantities can be taken.

I have not yet met with a case in which a patient could not, in one way or another, eventually be brought under milk treatment.

There is another class of cases in which the difficulty does not arise from repugnance to milk, but from such a state of exhaustion that

CHAP. VIII. we fail to get the patient to swallow enough of it to enable him to live. Some patients are so worn out with dyspepsia, diarrhœa, and debility, that they can only swallow a certain quantity of fluid, and cannot digest solids. Milk is the only nourishment they can digest, and they cannot take enough to sustain life. It was whilst attending a man in this condition that I conceived the idea of reducing, by evaporation, the quantity of milk necessary to be taken. He was in a state of great prostration, and having apparently an invincible repugnance to milk, an endeavour was made to support him on beef-juice. His condition got rapidly worse. The diarrhœa became incessant, the motions being passed involuntarily. The tongue was hard, dry, and cracked, the teeth covered with sordes, and the pulse quick and thready. The chances of recovery seemed to be very small; in fact, he was practically given up. I had again ordered a return to milk diet, but found it impossible to get him to take more than two and a half pints in the twenty-four hours. No improvement followed in forty-eight hours, and it being evident that, unless more milk could be assimilated, the case was hopeless, I directed that the milk

*Milk
reduced by
evaporation.*

should be evaporated to one half its bulk. Of CHAP. VIII.
this he was able to take at once the equivalent of
three and a half pints of ordinary milk in twenty-
four hours. This proved sufficient to arrest the
threatened collapse. Gradually his condition
began to improve, and eventually he consumed in
evaporated and natural milk the equivalent of
nine pints daily. He made a perfect recovery,
and five months after he had been at death's door
he was shooting grouse in Scotland.

Since then I have had several cases in which it
was only by evaporation that milk diet could be
made feasible at all.

*Directions
for reducing
milk by
evaporation.*

To reduce milk by evaporation, without render-
ing it unsuitable for the patient, is a matter re-
quiring a little intelligence and much patience.
The enamelled pan used for the milk should be
placed over hot water in order to prevent the burn-
ing of the milk. The vessel that contains the hot
water is most conveniently warmed over a spirit-
lamp, the water vessel and the enamelled pan being
made to fit each other, and they should be round.
The milk must not be allowed to boil, but should
be heated quickly and stirred continuously after
it gets warm and until it has become cold, to
prevent a skin forming. If the cream is allowed

CHAP. VIII. to come to the top, the milk takes longer to evaporate, and the taste is not so good. When the evaporation is properly effected, the cream remains in the milk as usual, but of course rises on standing. The milk should therefore be stirred before being drunk. Evaporated in this way, it is of a richer taste and appearance than ordinary milk, but is not unpalatable; it turns sour more quickly than fresh milk.

There is no mystery in the process, and any intelligent cook can carry it out in the kitchen. In most of my cases it has been done by the nurses, on whose time, however, it makes considerable demands; but if the case is not a very urgent one, a nurse can find time to evaporate twice a day. The milk should be reduced to half its original bulk. Each evaporation will probably occupy about an hour and a half, and as constant stirring is necessary, the process is sufficiently irksome.

Simple as are the materials needed for this process, I am generally asked where they are to be got. James Allen and Sons, 21, Marylebone Lane, W., make the very simple apparatus required. The Aylesbury Dairy Company undertake to supply patients with milk eva-

porated in this manner, and their product is CHAP. VIII.
excellent.

Some patients who have no real difficulty in swallowing fresh milk, nevertheless prefer to have a proportion of what they take reduced by evaporation, and as the effect is equally good, I make no objection.

The quantity of milk which should be given must be regulated by the age and bulk of the patient, and the severity of the symptoms. If the case is severe and the digestion very weak, it is necessary to begin by a small quantity; and it is safer to err on the side of the smallness of the amount given. Four pints in the twenty-four hours I consider a small quantity, and three and a half pints a very small quantity; but there are cases in which even this minimum is advisable. I frequently begin with four pints, particularly in the case of a small person. An average quantity in my practice is five pints. This presupposes a certain amount of strength and digestive power remaining. In a well-developed person with a fair amount of strength, and with the power of digestion not greatly impaired, we may even begin with six pints, but this is exceptional. In cases in which there is a considerable amount of

*Quantity of
milk given.*

CHAP. VIII. strength left, and in which the patient insists, as is sometimes the case, in going out and in attending to business, six pints to begin with is necessary.

As soon as the diarrhoea has ceased, the patient is allowed to increase very gradually the amount of milk taken, according to his power of digestion, absence of diarrhoea, and appetite. Patients who do well, take eventually six, seven, and even eight pints and upwards. On the smaller quantities, five pints and under, weight is generally lost. An average-sized person, taking no exercise, will keep his weight on six pints, and will begin to put on weight on any quantity above six pints, if it is all digested. Those patients who take seven and eight pints (young and middle-aged men often taking these larger quantities), rapidly put on weight.

One of my patients in convalescence, whilst living in a healthy part of the country, gradually increased the amount of milk taken, until he consumed and digested ten to ten and a half pints a day ; but this quantity is quite exceptional. During the whole process he increased in weight from a little over eight stones to fourteen stones. He was a large-framed man, but when he began

the treatment he was in a state of extreme emaciation. CHAP. VIII.

In the majority of cases it is not enough simply to prescribe milk diet. In all severe cases it is further necessary to put the patient to bed, and keep him there for a period of weeks, and even in cases which are not severe it is advisable to do so until the diarrhœa has been arrested for about five to eight days. To send the patient to bed as soon as the treatment is begun is my invariable practice, even in comparatively slight cases, if the patient will submit to the restriction. In all serious cases I make it a *sine quâ non*. At the same time he is directed to cover the abdomen with a thin layer of cotton wool, kept in its place by a flannel bandage. After the motions have been solid for about a week, the patient may spend a very little of his time sitting up, and a good deal of it on the sofa. When they have been solid for about a fortnight, if the weather is good, he is allowed to go out for a drive or a short walk, every precaution being taken to prevent chill. Anything in the shape of exercise must be for a long time forbidden. During this period and during all the subsequent treatment, great care must be taken

*The patient
should keep
his bed.*

*Precautions
against chill.*

CHAP. VIII. to prevent the surface of the body being chilled, even in the slightest degree. The patient should only be allowed to dress and undress in a warm room, and should never go to a cold water-closet, (a common source of danger in such cases). I have known bad relapses produced in two instances, by the patients getting chilled in the water-closet in severe winter weather.

Exclusive milk diet should be continued until the motions have been solid for a considerable time ; in an ordinary case about five or six weeks. This is probably the minimum time in which the diseased mucous membrane has become sufficiently strong to allow an addition to the diet, with anything like a certainty of good results. I am well aware that patients sometimes begin to take solid food after a much shorter interval, and without bad consequences ; and in my earlier experiences of this disease, and particularly in very slight cases, I have allowed a small amount of farinaceous food from the beginning (as may be seen by examining the histories of the first cases which I have given) ; but the great frequency of the relapses in this disease and their disheartening effect on the patients, have led me to believe that it is wiser to begin in all cases

with exclusive milk diet. It is likely to be in the long run a great saving of time and anxiety. CHAP. VIII.

When the motions have been solid for from five to six weeks, and particularly if the tongue is no longer tender, I allow a small piece of the crumb of stale bread, recommending some trouble to be taken to ascertain that it is of good quality. At this stage, if the patient is doing well, his appetite is likely to be so voracious that it is necessary to be very strict regarding the quantity of bread given, and I usually sketch on paper the size of the piece which I allow; the first day not more than about one ounce is to be taken with the milk. If the one ounce a day is borne well, after three days it may be given twice a day, and after two days more, if still borne well, three times a day. If an ounce three times a day produces no symptoms, the quantity is doubled to two ounces given three times a day for three days, and after a week the quantity is still further increased. This extreme precaution regarding the smallness of the quantity may seem to be unnecessary, and probably in many cases we could go quicker; but experience has taught me that these are safe lines on which to proceed. If the bread given in this way disagrees, so little damage is done that it can

*First
additions to
milk diet.*

CHAP. VIII. be omitted temporarily, without the symptoms being aggravated to a degree which could be called a relapse, and without discouraging the patient. Even this small quantity of bread greatly increases the patient's strength. At one time I was in the habit of giving eggs very early, and they often agreed well; but I have found that in some cases they disagree, and I have seen several troublesome relapses caused by them. For this reason I do not now usually allow them in the early stages of the treatment. When the patient is taking bread he often asks for butter to be taken with it, and this I allow. The milk is continued while he is eating bread, in scarcely diminished quantity, and is not at all diminished whilst the quantity of bread taken is very small. On bread and butter and milk the patient is allowed to get strong for three or four weeks, after which time I allow him to try, tentatively and cautiously, boiled or stewed white fish. I begin with whiting, and after a time I allow him a greater variety. If there is no relapse after a fortnight of fish, the period being longer or shorter according to the gravity of the case, I allow boiled or stewed chicken, and keep the patient for some time on this diet of milk, bread,

fish, and chicken, the quantity of milk being diminished in proportion to the amount of solid food taken. On this diet the patient is allowed to take a fair amount of exercise, in order that his general health may be improved, no further addition being made to his diet for a period of two to three weeks. To vary the monotony of the diet, light farinaceous puddings may at this stage be substituted for part of the bread, tapioca and arrowroot usually agreeing well, and being given by preference. The next additions are boiled mutton and the flower of well-boiled cauliflower, not beginning them simultaneously. If the patient remains well on this diet, he is gradually allowed to add to it soft, simple, and well-cooked food. I am in the habit of allowing beef only after the other items of food mentioned, although I am perfectly aware that in cases of long-continued diarrhœa, when the acute stage is over, the motions may become solid for a time when beef-steak is given. In my experience these recoveries have, as a rule, not been permanent, and I have seen several bad relapses produced by the addition of beef, after the other items of food had been well borne. It is for this reason that I put beef last on the list, as I am unable to tell

CHAP. VIII. beforehand in which cases it is likely to disagree. Beef-tea is sometimes useful in the early stages of convalescence; but it may also disagree, and its nutritive value, in the stage in which it might be given, is not equal to the solid foods, and therefore, although I look upon it as a possible auxiliary, I do not give it regularly.

*Diet after
 conva-
 lescence.*

For a long time after convalescence, even after a period of years, patients do wisely to avoid eating the kinds of food which are known to be difficult of digestion—salads, raw vegetables, and any kinds of fibrous vegetables, as well as pickles and the harder condiments. These may bring about dyspepsia, soreness of the tongue, and diarrhœa years after the health is apparently restored.

*Fruit in
 psilosis.*

The position of fruit in the treatment of these diarrhœas is not well defined. It is undoubtedly the fact that in many cases some fruits, such as bananas, may be given with benefit comparatively early. There is even a “fruit cure” of this disease, which was advocated by A. Sonius, a physician at Pattie, in Netherlands, India.* Sir

* In reference to this cure Van der Burg (*loc. cit.*) remarks as follows:—“The patients are directed to drink constantly a thin syrup of mulberries, to which a little laurel water is added when diarrhœa is severe. Meanwhile fruit is administered on a

William Gull, whom I asked to see one of my patients, told me that he recognised in the disease a similar affection to one that he had himself observed, some thirty years previously, in a lady who had returned from India with severe, well-marked symptoms (a case, I have no doubt, of so-called "tropical diarrhœa"), who got well by walking about for hours in a garden eating strawberries, on which she largely subsisted. Experiences of this kind are interesting, and I think it is not to be doubted that there are cases in which treatment by fruit might be tried; but

CHAP. VIII.

large scale, beginning with soft kinds from temperate climates, such as Australian and American apricots, peaches, apples, and pears, in tins and preserved without sugar. Too much syrup is employed in the preservation of French and European fruit in general. Sonius liked to give at first strawberries and mulberries in water, and in most cases they are well borne; but the seeds in this fruit sometimes render them too irritating. No objection of this kind lies against the other fruits just mentioned if care be taken to peel the apricots and peaches and to remove the cores of the apples and pears. Along with these cucumbers may be given, and the juice of squeezed cucumbers; likewise a plentiful quantity of certain species of *Lagenaria* (*Laboe ajar*), melon, white gourd, and, later on, ripe mangosteens and various species of *Nephelium* (lichi, *Lungans rambutan*)—in short, all fruits containing a large quantity of water. Grapes too may be taken, but not those preserved in tins. The perfectly ripe juice of oranges and pumeloes is permitted, to the exclusion of all other species of the citron genus. Pincapples and sour fruit must be avoided."

CHAP. VIII. I am certain that, on an average, the results are neither very satisfactory nor so permanent as those which are obtained by the treatment I have indicated. I could not, therefore, advise it to be used as an alternative unless every other treatment had unmistakably failed.

Stimulants. The treatment of this disease does not include the use of stimulants, which, I feel satisfied, do not assist the cure. Whether they should be allowed depends on the previous habits of the patient; in persons who have used stimulants very moderately, or who are comparatively young, I forbid their use altogether. In middle-aged or elderly people who have been long accustomed to the use of stimulants, I allow a little whisky, which can be added to the milk, half an ounce at a time, two or three times a day. This mitigates the feeling of discomfort produced in such persons if stimulants are given up altogether, and does not appear to do any harm. The addition of a very little whisky to their milk renders it less unpalatable to these patients, and thus facilitates the treatment. But in all cases in which the patients can do without stimulants, I believe that it is better that they should do so.

What is to be done in a case in which milk

cannot be taken or cannot be borne, or in a case in which it aggravates the symptoms? I must premise by remarking that, in cases which have not passed into the incurable stage, I have only once seen milk, properly given, aggravate the symptoms, and that I have not once failed in inducing the patient to take milk, although there has sometimes been a great initial difficulty. The alternative of milk, in the first instance, would be a treatment by beef juice. My own experience of this treatment is not large. In a case which I have related (p. 102), this treatment was effectual in producing recovery during a very acute stage of the illness, but was not successful during a fatal relapse, milk also at the time being passed undigested. In cases in which the quantity of milk taken and digested was small, and the patient's strength was gradually failing, a temporary check to the downward course has sometimes been effected by giving beef juice exclusively; if it did not succeed in averting the fatal termination, it was probably partly due to the fact of the patient being already past hope of recovery. So convinced am I that the milk treatment is the best, that I would not in any case begin with meat juice; but if milk

CHAP. VIII.

*Treatment
by beef juice.*

CHAP. VIII. failed me, that is the treatment I should try.

*Machine for
making beef
juice.*

To get enough beef juice to feed a patient, all other food being excluded, it is necessary to obtain the juice expressed from 12 to 20 lbs. of raw beef-steak in the twenty-four hours. A small French machine which is made for this purpose is very convenient. It consists of a cylinder perforated with holes, and fitted in an iron case, the meat being pressed heavily by a metallic disc, driven downwards by a screw similar to that of the letter-copying machine used in offices. The meat juice flows from a spout, which conducts it from the false bottom in which it is collected. Without some such machine as this it is impossible to get sufficient juice from raw meat to keep the patient alive.*

*Treatment
of the dys-
pepsia which
follows
psilosis.*

When patients recover their health, but suffer from dyspeptic troubles, with occasional looseness, a period sometimes arrives when a change from milk and farinaceous food to underdone beef-steak is beneficial. These patients, as a rule, suffer, not from the active disease in the bowel, but from the impaired functions which are its sequelæ; and if a temporary return to milk, either alone or with farinaceous food, does

* Messrs. Benham, of Wigmore Street, supply this machine.

not relieve the patient, a treatment by raw or underdone meat may be tried. CHAP. VIII.

I purposely abstain from enlarging on alternative modes of treatment than that by milk. The changes in the various forms of digestible foods must be regulated by the discretion of the practitioner. My experience, however, teaches me to agree with what has been remarked by Sir Joseph Fayrer, that if milk does not succeed, there is not much to be expected from other treatment.

Bertrand and Fontan have studied the diarrhoeas of the tropics so closely, that I believe that a summary of their views regarding milk treatment may interest English readers. They consider cow's milk best, and that fresh milk is more digestible than cooked milk. Therefore they give it unboiled in winter, and boiled in summer. They usually give it pure, but sometimes add a little water or a little bicarbonate of soda to it. Although, as a rule, they add nothing, they have seen cases in which the addition of rice water made it better tolerated than the unmixed milk. They begin by giving a litre and a half or two litres, increasing the quantity later, and advise that it should be taken frequently, and very little at a time—in small

*Bertrand
and Fontan
on milk diet.*

CHAP. VIII. mouthfuls, and not in glassfuls. They speak approvingly of Feris' method, according to which the patients suck the milk through a straw or glass tube. They consider that milk may be continued for eight or ten days, even if there is no improvement. After that time, if the motions remain liquid and pulpy, they believe that it is useless to continue it; but before giving it up they suggest that an attempt may be made to digest the milk artificially. They are of opinion that milk is chiefly digested in the intestines, and that its action is diuretic.

*Treatment
by drugs.*

In regard to the treatment of this disease by drugs, I have little information to give. In the earlier period of my experience of it I was in the habit of giving small doses of tincture of rhubarb, combined with small doses of sulphate of magnesia, and sometimes there was undoubted temporary relief given by this mixture. Under its use I have observed the motions become for a time less fluid, but more extensive experience showed me that these drugs possessed no real curative power. The same remark applies to every other drug which I have tried. I believe that drugs have no influence on this disease, and that, as a rule, they had better not be given.

When the diarrhœa is unusually severe and there are painful exacerbations, and particularly when there are acute relapses, one or two doses of laudanum, 20 to 25 minims, given at sufficient intervals, is often of great temporary benefit, and it is frequently necessary to give it; but opium is no cure for the disease, and in most cases, if continued or pushed it upsets the digestion of the patient and diminishes nutrition. It should be looked upon, therefore, as a remedy only to be given temporarily, and when specially required.

The occasional use of other drugs to meet unforeseen complications or symptoms should be in accordance with the general principles of therapeutics.

RELAPSES.

RELAPSES are so frequent in this disease, and are so discouraging to the patient as well as to his medical adviser, that their causes deserve special attention. First of all in importance is error in diet. Patients differ much in their obedience to the restrictions which it is necessary to impose upon them. Some of them are so constituted mentally that when they have made up

CHAP. VIII.

*Relapses
caused by
error in diet.*

CHAP. VIII. their minds to undergo treatment they carry it through strictly, and never transgress the rules which are laid down. Generally these cases do well. Others cannot be persuaded to be thoroughly strict, although they may have had the bitter experience of several relapses from eating forbidden food. A considerable number of these patients eventually find the wisdom of implicitly carrying out the instructions which they receive. But there is a class of patient (fortunately in a minority) who find it impossible to keep this rule. No drunkard is more difficult to keep from his drink than are these patients from eating what is injurious, and they will practise deceit and stratagem in order to gratify their invincible desire for variety of food.

Patients of this class who have professed to be living strictly on milk diet, are often found out by a careful examination of the stools, in which undigested meat, vegetables, seeds and skins of fruit, &c., may be found. It is important to have the stools well washed from time to time in order to see what the débris is which remains at the bottom of the vessel. It is when doing this that I have sometimes been able to detect an unhappy patient in grievous transgres-

sions, and have obtained a confession of how the surreptitious food was obtained. CHAP. VIII.

This desire for forbidden food is so great in some cases that it is impossible to control it. I can recall two instances in which men threw away a fair chance of recovery by their incapacity to resist this kind of temptation. In such cases, as the disease becomes worse and the anæmia greater, the will gets weaker and the temptation to indulge stronger. The management of such patients is very trying, particularly to the relatives and nurses. In my experience this condition of mind has usually occurred in persons of neurotic or highly-strung nervous temperaments, the weak point in their constitution getting the upper hand when the power of the will was weakened by malnutrition.

Not so frequent as from errors in diet come relapses from cold, which are, however, sometimes much more serious in their effects. I have known patients who were progressing satisfactorily towards recovery, thrown back for months by a single chill, and men who were able to travel, and to digest quite a fair variety of food, and were steadily gaining strength, require to be put to bed and to be kept on milk diet for weeks

*Relapses
from chill.*

CHAP. VIII. as the result of exposure to cold. In these cases I assume that the effect of the chill has been to set up fresh congestion in a mucous membrane which, although undergoing a process of steady repair, was not able to bear without injury the vascular distension caused by the blood being driven inwards from the surface of the body. The many precautions necessary to prevent the possibility of such chills must be adapted to the circumstances of the patient, the season, and the climate. I lay it down, as a rule, that on no account is the surface of the body to be allowed to be cold for a single minute. The good results which follow the confinement of the patient to bed I attribute more to the fact of the skin being kept at a uniform warm temperature than to the undoubtedly favorable effect of the recumbent posture.

CHAPTER IX.

PROGNOSIS.

CHAP. IX.

THE prognosis in this disease depends greatly on the age of the patient, and on his general health at the time when he was attacked. In comparatively young subjects, if appropriate treatment is employed before the malady has lasted a long time, and if the patient is amenable to the restrictions which are necessary, the prognosis is distinctly good. The gravity of the case increases with the age of the patient. After fifty, unfavorable elements in the case make themselves more felt; and in old people, if the disease is at all severe, or has lasted any time, the prognosis is not favorable. A naturally weak constitution, enfeebled by wasting disease or climate, acts prejudicially like advanced age by diminishing the capacity of repair. Many patients make perfect recoveries and enjoy good health afterwards. Some of them remain well only so long as they

*Importance
of age in
prognosis.*

CHAP. IX. are cautious in diet, requiring not only to abstain from excess in eating and drinking, but to avoid certain articles of food, which experience has taught them invariably provoke intestinal irritation. A return to the countries where the disease was contracted does not necessarily lead to relapse, although many patients who so return, after keeping well, sometimes for a period of years, again acquire the malady. Undoubtedly those patients, as a rule, do best who remain in Europe. Such persons who have fairly shaken off the disease, and have for a few years after their recovery lived cautiously, usually enjoy continued good health.

Climate. Patients who have recovered, if they are left much weakened and with a feeble circulation, as is sometimes the case, do well not to spend the winter in England. In cold and damp weather they are apt to suffer from dyspeptic symptoms and occasional attacks of diarrhoea, even if the psilosis does not return. Such patients do better if they spend the colder months, particularly the early spring, in the south of Europe or in Egypt. I have had patients who did not do well in England in winter, but were well in Pau and Cairo. Others have done well in Montreux. Bracing

weather, sunshine, dryness, and not too great heat, are the conditions that should be sought for in selecting a climate for those persons. There is no better climate for them than England in the summer and autumn, and even into the very late autumn.

APPENDIX.

CASES.

APPENDIX.

THE cases related in this Appendix have been selected to illustrate the views which I have been led to adopt regarding the varieties of psilosis.

Four groups. They have been divided into four groups.

The first group contains Cases 1 to 6, reprinted without alteration from the first edition.

The second group contains Cases 7 to 20, which I consider to be also typical examples of psilosis linguæ. A comparison of the reports of these cases with those of the first six (those from the previous edition) will show in how far a larger experience has somewhat modified the method of treatment which I follow.

Cases 21 to 26 are selected from examples of intestinal psilosis, which are known by Indian writers as diarrhœa alba, &c. A comparison of this group with the previous two groups is

intended to show what points of difference there are between the two varieties of psilosis. APPENDIX.

The fourth group—Cases 27 to 30—contains brief notes of the symptoms in four patients in whom, from various causes, the evidence did not seem to me to be sufficient to decide into which of the previous groups they could be placed.

Although I have not entered into the question of dysentery, I have added to the list of cases a brief note of one case (Case 31) of chronic dysentery, in order to illustrate the success which usually attends milk diet in this disease. (A treatment from which I have obtained good results in chronic dysentery is the use of enemata of nitrate of silver, half a grain to the ounce, with milk diet conducted on the same lines as those laid down for the treatment of psilosis.)

APPENDIX.

PSILOSIS LINGUÆ ET MUCOSÆ INTESTINI.

Cases 1 to 6 reprinted from the first edition, and additional Cases 7 to 20.

GROUP I.

CASE 1.—A delicate man of anæmic appearance, about fifty years of age, who had been a number of years in the East, first consulted me in 1879. His symptoms were those of well-marked psilosis. They rapidly improved under treatment up to a certain point, and he passed out of my observation. The sequel showed that he had never got completely rid of the disease. I next saw him in July, 1884. He then told me that he had been suffering for several years back more or less continuously from irregular action of the bowels, soreness of the mouth, irritation of the throat, and flatulency. His motions were never natural. He had undergone a great variety of treatment, both dietetic and by drugs, under various medical men, without any real amendment. Milk diet he told me had been tried, but on account of the rapid loss of weight and weakness the medical man who was attending him at

the time did not consider it prudent to keep it up. He was strongly impressed with the idea that his symptoms were due to liver disturbances, and it was with great difficulty that he could be persuaded to try the treatment which I recommended. He at last consented to try it *for two months*. I prescribed him a diet of arrowroot biscuits, milk, raw eggs, corn flour, and beef tea, the staple being milk. On this he gained weight. The quantity of nourishment taken, and the intervals, to some extent, were regulated by himself, as he complained of want of appetite and great dislike to the food. The following record of one day may be taken as a sample of his dietary at this time :

7.30 a.m. Tumbler of fresh milk.

9 ,, Two boiled eggs; toast, and bread
 and butter; two breakfast-cups of
 boiled milk and bread.

11.30 ,, A basin of strong beef tea, and a
 large arrowroot biscuit.

1.30 p.m. A tumbler and a half of milk with one
 or two raw eggs beaten up; some-
 times another arrowroot biscuit.

3 ,, A tumbler of milk.

5.30 ,, A basin of strong beef tea and toast.

APPENDIX. 7.30 p.m. A basin of corn-flour gruel with milk,
taken warm, and an arrowroot
biscuit.

10 „ On going to bed a tumbler of milk
and a small piece of biscuit.

On this dietary he had no indigestion and felt fairly strong. He generally became hungry about the hours named. He could not take more fluid without discomfort.

On 17th July he wrote, "I have gained weight, I am sure, although I have not tested the increase in the scales, and I am free of indigestion and inflammation of the palate, but generally sleepless till long after midnight, with disagreeable sensations along the muscles of the legs. Generally I am much better, and I propose to continue the regimen for some weeks more. It will be a month to-morrow since I commenced it."

He continued the diet for two months, at the end of which time he felt comparatively strong and well. His anæmia was less, the motions were natural, the mouth free from soreness and tenderness.

I recommended a very gradual return to ordinary food, but my advice was not taken. The patient resumed his usual active habits, took

exercise freely, and ate indiscriminately. The consequence was a relapse. APPENDIX.

The first symptom of the relapse was soreness of the mouth, a superficial erosion about the size of a threepenny piece appearing on the inside of the right cheek. The mouth generally was uncomfortable, and pharyngeal irritation began.

At first the symptoms of bowel irritation did not reappear, but they also soon returned, and within a few months after his restoration to health all the characters of the disease were again fully developed.

On April 26th, 1885, I was consulted on account of an exacerbation. He had had a severe chill, the atmospheric temperature having fallen suddenly 15 degrees, after which he immediately felt very ill. I found him with a bad appetite, suffering from great restlessness, the muscles of the legs being painful and tender, and he was weak and helpless. I prescribed a three-grain rhubarb pill, which produced a very large motion, part of which contained some bile. I also prescribed tonic treatment, and liniments and sedatives if required.

April 29th.—Debility increasing; all solid food sticks in the gullet and produces great pain and

APPENDIX. irritation. He has therefore gone back to fluid and pulpy food again, which produces no acidity, but which he dislikes very much.

May 2nd.—The last few days only one motion daily, which was pulpy and of a white colour. Small doses of rhubarb are being given. Weakness has increased, and he has lost about 11 lbs. to 14 lbs. in weight during the last few weeks.

5th.—Great restlessness; pulse 75 to 80, full and jerky; skin dry. In twenty-four hours took three pints of milk, clear soup twice, five biscuits, corn flour once, three small pieces of toast, two raw eggs. Has passed twenty-four hours without a motion; mouth sore.

About this time several physicians saw him in consultation, and at the suggestion of one of them malt and hops were prescribed. The motions, although never healthy, varied a good deal, sometimes being partly formed and sometimes containing a little bile. Sometimes the motions were putty-like, occasionally very copious, and containing appearances of undigested food. Under the microscope it was found that the *faeces* contained muscular fibres. (Although not taking meat, he had had beef tea and chicken broth.)

16th.—The nervous irritability was so marked that bromide of potassium was prescribed; the anæmia increasing. APPENDIX.

24th.—No motion for forty-five hours; previously the motions had been loose and slightly acid. They contained many white flocculent masses, which were seen under the microscope to contain degenerating epithelial cells. The temperature, which had been normal throughout, still remained normal. Pulse about 82 to 86. Simultaneously with the aggravated condition of the stools, several sore places appeared on the tongue.

28th.—About this time there seemed to be a slight improvement.

June 6th.—At this time, after a consultation, a mixed diet was allowed, and various drugs were given, amongst them sulphate of beberine and animal charcoal. He had chops and asparagus, and what would in ordinary circumstances be termed a liberal diet. The result was at first an increase in muscular strength, better spirits, and a feeling of *bien-être* and hopefulness. He was able to take carriage exercise, but simultaneously with improvement in these respects the peculiar symptoms of his disease

APPENDIX. became aggravated. The motions were foetid, brownish green, loose; sometimes several in twenty-four hours, sometimes the same period would elapse without one. Several erosions on the tongue, and an erythematous patch on the mucous membrane of the cheek appeared. The motions were strongly acid. Occasionally a more healthy motion was passed, there being an attempt at formation, with a pale yellow colour.

10th.—There had not been a motion for forty-eight hours. Feels well, looks well, talks strongly, but the mouth continues sore; on the left cheek there is an abrasion half an inch by one third of an inch. On the right side of the tongue there is a patch half an inch by a quarter of an inch. The patch on the tongue sometimes bleeds.

12th.—Although still feeling well had a bad motion. At this time he left London, and I never saw him again, but I was kept informed regarding his symptoms and condition until his death, which occurred in the following winter.

After leaving London he gradually but steadily deteriorated, lost weight, and became more and more debilitated. Under able advice and careful watching it was at last determined to treat him

by an exclusively milk diet, which, however, APPENDIX.
failed in restoring him to strength or in arresting
the exhaustion and anæmia.

The points to be specially noted regarding this patient's case are—the long duration of the disease, the extreme anæmia, and the intense dislike to, and intolerance of, a purely milk diet. Further, it is to be noted that in the autumn of 1884 a diet, which was not exclusively milk, completely arrested the disease. I entertain a strong belief that if the diet under which he improved had been continued at that time for a sufficiently long period the disease would have been definitely arrested. The extreme anæmia exposed the patient to aggravation from changes of temperature, and in itself was so pronounced as to constitute a serious condition. It produced various complicating symptoms, with the description of which it is not necessary to burden this history, and arrested the attention of all the medical men who saw him in consultation from time to time. In the minds of those of them who were not familiar with the insidious intestinal disease from which he was suffering it occupied the first place.

*Extreme
anæmia.*

*Effects of
chill.*

APPENDIX.

Diarrhœa
not severe.

This man's condition could not be accurately described as one of chronic diarrhœa, far less of dysentery. There were absolutely no symptoms of dysentery; and the diarrhœa was only occasional, never severe, alternating with periods of positive inaction of the bowels. I have it in my notes that on the 24th May the bowels acted at 2 a.m., not having done so previously for sixty hours. It would be quite accurate to say that one of the symptoms of the disease was the disordered state of the bowels, the motions never being healthy, and sometimes very copious.

The history of the case forcibly illustrates the fact that a generous and mixed diet may for a time improve the muscular strength of the patient, but that it inevitably leads to an aggravation of the disease and a subsequent still greater debility. The examination of the stools showed in the clearest way that vegetable structures and muscular fibres passed through the intestine unacted on, the soreness of the mouth offering the earliest warning of the deterioration with which the presence of undigested food in the intestine was associated.

CASE 2.—B. A—, æt. 32, who had been ten

years in different parts of China, consulted me in August, 1885. He had long suffered from dyspeptic symptoms. In 1882 it was noted by Dr. Macleod, of Shanghai, that occasionally the bowels were loose and the tongue sore, and that the digestion was impaired. He never was well after that time. He had been treated both in Shanghai and Hong Kong, and amongst other methods of treatment milk had been tried. When he saw me he told me that his tongue had been tender for several years, and that he had not had a healthy motion for three years. His tongue was specially tender when he took anything hot. His usual habit was two loose motions each morning, the motions being of a brownish colour and pulpy in consistence. He was free from fever. His tongue was red on the edges, but was not denuded of epithelium. I ordered him to live on milk, eggs, stale bread, beef tea once daily, arrowroot, and corn flour.

I next saw him on October 2nd, and then noted: "Motion to-day cylindrical, yellowish. There was a little blood on the motion. There is only one motion daily, and every day for four days there has been a little blood on it."

October 22nd.—Still pain in passing the one

APPENDIX. solid motion daily, but there is now no blood on it. He feels well. Tongue white in centre, red on edges, sides near root cracked, but not ulcerated. Pulse 72, regular and soft.

November 17th. — Sometimes constipated. When the motions are hard there is blood on them. About this time indiscretion in diet brought on a relapse with very painful dyspeptic symptoms and much flatulence, and he was put on exclusive milk diet.

December 16th.— Been on milk for three weeks, taking six pints daily. For three days has, at his own instance, had bread and butter with the milk, taking three slices three times daily. Abdominal pain gone, although he is still slightly flatulent. Since beginning the bread and butter the motions are not less formed, but are dark in colour. The tongue is well. Ordered to give up the bread and butter, and go back to milk alone, which he did until the 25th, when he again began bread and butter.

January 1st.—Motions natural; only sometimes slight flatulence.

February 10th.—Diet since last note has consisted of eight to ten glasses of milk, bread and butter, with occasionally a little soup and arrow-

root. One healthy motion daily, never pulpy, APPENDIX.
but sometimes very hard. Bodily and mental
vigour increased. Weight, December 5th, naked,
8 st. 12 lbs. On February 9th, 9 st. 4 lbs.

March 30th.—For three weeks been living on
milk, bread and butter, eggs, and fish. Weight
not altered. For some time after this he seems
to have been quite well. My next note is dated
May 13th. He had been eating mixed diet, such
as chops, potatoes, &c. Four days before coming
to see me he had had a chill, and there had been
one loose motion daily since. There was a dis-
tinct relapse, probably partly due to chill, but more
probably to his having gone too quickly to a
promiscuous diet. He had not practised the
caution which I had enjoined. I again recom-
mended an exclusive milk diet.

May 24th.—Instead of taking milk exclusively,
he had taken milk and bread and butter. The
motions became hard, and in two days he re-
sumed one meat meal daily with soup and vegeta-
bles, at the same time taking milk and bread
and butter freely.

Shortly after this time carelessness in diet
produced another relapse. He took freely of all
the food in season—meat, vegetables, green peas,

APPENDIX. salmon, salads, &c., drinking beer with his meals. The relapse came on gradually. The tongue became slightly furred on the centre and a little cracked on the sides.

I saw him on July 7th. He was passing two motions daily, the motions being unformed and slate-coloured. The dyspeptic symptoms had also returned, with a general feeling of malaise.

I kept him for several days under observation, and put him on strict milk diet. In twenty-four hours there was a solid motion, brown in colour, and bringing away as a covering a thick mucous sheath. For two days the motions continued solid, but there was much less of the sheath. He was sent away with strict injunctions regarding the necessity of obedience in matters of diet.

August 20th.—Has been taking three to four quarts of milk daily, and for the last week has been taking also bread and butter, and a bowl of arrowroot morning and evening. Has had, as a rule, one solid motion daily.

October 19th.—Has been engaged in business lately. Bowels regular and motions healthy. Lives on milk, eggs, bread, and other farinaceous food. He has regained his usual strength;

weight, naked, 9 st. (he does not seem to have APPENDIX.
ever weighed much more); pulse regular, 76,
moderately full. No soreness in mouth or
tongue. Tongue slightly furred and white,
normal in appearance. He was quite well,
but was enjoined to be cautious in diet for a
long time.

I have related the case in full, as it affords
a typical example of the difficulties we meet
with in treating patients suffering from this
disease in its less advanced forms. This man
unmistakably brought on one relapse after *Relapses*
another by his indiscretions in diet. I have no *caused by*
doubt that if he had strictly obeyed the in- *indiscretions*
structions given him when he first came under *in diet.*
treatment, he would have completely recovered
within a few months, instead of suffering for a
year from a protracted series of symptoms
of a disquieting and ominous nature.

CASE 3.—A. A—, æt. 40, consulted me in
December, 1883. Had been many years in China.
In the summer of 1881 had acute diarrhœa, and
was very ill for three weeks. Motions never been
natural since. Suffers from heartburn, anorexia,

APPENDIX. and disagreeable sensations in the stomach, with sleeplessness. His mouth is sore and sensitive to hot fluids. Has had several acute attacks of diarrhoea during the last two years and a half. Has been in England for six months, during which time his general condition has improved. Has occasional relapses of diarrhoea.

Prescribed 10 minims of tincture of rhubarb and 5 grains of Epsom salts twice daily, and 1 grain of quinine in pill twice daily, and put him on a diet of milk and farinaceous food. Under a treatment of this kind, carefully and conscientiously carried out by the patient, he gradually lost his symptoms, became quite well, and was able to return to the East.

Before this patient consulted me he had been treated for dyspepsia under able guidance, and a diet had been prescribed under which dyspeptic persons in England frequently do well. But in his case it failed to give relief. The pepsine, bismuth, and usual remedies prescribed in such cases had been freely tried and found useless.

CASE 4.—T. P—, age about fifty, consulted me in May, 1886. He had been many years in tropical countries, and had been a considerable time

in China. His present illness began a year before he saw me. APPENDIX.

The first symptoms were gripes in the pit of the stomach, aching of the thighs, and loss of weight. In two months the pain ceased, but considerable depression of spirits began. There was at this time one loose motion daily, which was straw-coloured and pulpy, with a sense of uneasiness in the stomach, but no nausea. He slept a great deal, and had a ravenous appetite. He states that the urine was healthy, temperature natural, that the pulse was slow, and that he was easily tired. He had no thirst. Several times he had violent shivering fits during the autumn of 1885. Amongst the early symptoms were a red and clean tongue, and blisters on the lips and base of the tongue. The corners of the mouth and inner surface of the lips became similarly affected.

These symptoms had continued for a year when I saw him. He had been under constant medical treatment until he left China, and had been five months on milk diet without regaining his health.

Present state (May 26th, 1886). — His symptoms have in the main continued unchanged. He is griped morning and evening, and the

APPENDIX. bowels are usually relieved twice a day, the motions being very light, and containing what he considers to be a little mucus. His strength varies very much. The colder the temperature the worse he feels. Latterly he has been eating porridge, fish, farinaceous food, and ordinary vegetables. He drinks coffee, but is unable to take tea, which makes him sick. His usual weight has been about 14 st., but since his illness began he has gradually lost weight until he now weighs 12 st. Temperature 98·4°. Pulse 88, regular, small, and soft. Tongue slightly furred, not red, and covered with cracks which are not sore. The mucous membrane of the cheeks opposite the angles of the mouth is swollen, and the left side is the seat of very superficial abrasions about the size of a split pea. He states that as his stomach symptoms get worse his tongue gets less sore, and when the dyspeptic symptoms are relieved his tongue gets more tender. I advised him to take little exercise, rest as much as possible, to have a diet consisting of two raw eggs daily, arrowroot and milk twice daily, two arrowroot biscuits a day, and to drink milk *ad libitum*.

June 8th.—Has been taking ten to twelve tumblerfuls of milk daily, arrowroot with milk

twice a day, two eggs, and three to four arrow-root biscuits daily. Remained in town for two nights that I might see the motions. The first day I found the motion formed, white, with lumps like coagulated milk in it. The second day it was again formed, of a light yellowish colour, without lumps. Returned to the country to follow the same diet, and on June 21st wrote to me to say that the motions continued the same as when I last saw them. Passed large quantities of straw-coloured urine. Tongue smooth, slightly white. For several days the mouth had been clammy. The inside of the lips inclined to be sore. Pulse 58 to 64 per minute. He feels weak and depressed. Suffers much from flatulency, but pains in the back and loins, from which he had suffered, were not severe. He is taking three eggs instead of two, and feels always hungry. Recommended to add to the dietary one slice of bread and butter daily.

28th.—Writes that, since beginning bread and butter, heartburn and acidity, of which he had had a relapse, were relieved. He gained $3\frac{1}{2}$ lbs. in a week, and feels stronger and better. Motions the same. Flatulency much better. The diet at this time slightly modified, consisting of

APPENDIX. five pints and a half of milk daily, two basins of arrowroot, five arrowroot biscuits, one egg, two rounds of bread and butter.

July 5th.—Reports that pain in the back, depression, and flatulency had been worse, but the motions continue the same, and weight increases. Is at present on milk and arrowroot, taking fourteen tumblerfuls of milk daily, and a good basinful of arrowroot twice daily. Pain in the back continuing, but flatulency diminishing. Had been taking every third day 1 grain of rhubarb in pill twice daily. The pills at once deepened the colour of the motions. Pulse soft and regular, 68. Tongue clean, not raw, nor tender. Gums anæmic. Motions, one daily, which is hard and formed, causing sometimes a little straining, which brings away a streak of blood, but there is no mucus. The colour is either a light straw-colour or slightly brown. He is in good spirits, and sleeps well, although he has lost 6 lbs. in weight.

During August he had a relapse for a few days, which necessitated a return to very strict diet. The symptoms soon yielded, and he was able to resume the diet he had previously taken.

September 28th.—The motions are hard, brown,

cylindrical, only one daily, in which there is always a streak of blood produced by the hardness. Pulse 56 to 60. During the last eight days, by my direction, he had been taking boiled had-dock and boiled sole, partridge once or twice daily, three quarts of milk a day, and two rounds of bread and butter daily. Has not eaten vegetables or fruit, and has not eaten bread with partridge. During the relapse he had lost 6 lbs., but he had now got up to 178 lbs.

November 2nd.—Motions, one daily, hard, cylindrical, brown, no pain, no blood or mucus. Pulse 68, regular, fuller. Been walking eight to ten miles a day and shooting. Weighs 13 st. Tongue clean, not red, but not so covered as it ought to be. Has lately added to his diet roasted or boiled chicken once a day with cauliflower. Takes no stimulants. Ordered to take in addition to present diet roast mutton once in four days.

December 8th.—Mutton disagreed. Finds he can eat fish, poultry, or game. Bowels are still regular. Has taken no vegetable but cauliflower. To try mashed potatoes.

February 9th, 1887.—No intestinal disturbance. For several days, about a week ago, had slight

APPENDIX. diarrhœa, but by a short return to milk diet got well directly. He finds that he can always get well by a return to milk diet. Drinks milk with his meals. Had tried cider and claret, but both brought back diarrhœa. He lives on milk, farinaceous food, fish and fowl, and does not eat beef or mutton.

There is still leukoplakia on the inner angles of the mouth, and two opaque spots on the lower lip.

April 1st.—As the result of a chill had a relapse, passing four or five motions daily, the stools being light yellow and pultaceous in consistence. In four days he lost 2 lbs., but there was no tenderness of the mouth. No abdominal tenderness. (Area of hepatic dulness less than normal.) In a few days by dieting he again got quite well.

14th.—Reported himself as quite well. A careful examination showed nothing abnormal, except a somewhat diminished area of hepatic dulness. The tongue still shows areas formed by shallow clefts. The white fur on the tongue is peculiar. If the usual tongue fur were compared to a dense shrubbery, the fur on this man's tongue might be compared to a shrubbery that

had been thinned, the fur being of the usual depth, so to speak; but the elements that compose it, being less in number than usual, show the red mucous membrane at the bottom of the fur.

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I have reported this man's case so fully, as regards symptoms actually present, because it illustrates the relapses to which these patients are subject, and also teaches how a milk diet may succeed in obtaining recovery even when the improvement is accompanied with distressing flatulence and dyspeptic symptoms, always provided that the motions become hard. It also shows how a patient may get well without being kept long exclusively on a milk diet. Although this patient considered that milk disagreed with him, it was undoubtedly the milk diet that brought him round, and it was by going back to milk diet when his relapses came that he regained his lost ground. Considering the age of the patient and his previous history, he may be said to have done well. But a man of this age, while the tendency to relapse is so strong, must always incur considerable risk by returning to climates in which psilosis is endemic.

*Relapses
relieved by
milk diet.*

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CASE 5.—S. W. consulted me in January, 1884. He had been thirteen years in the East—in India, China, and at the Straits Settlements. In 1881 he had dysentery in India. When recovering he went to Shanghai, where he got quit of the dysentery, but he did not consider that he was strong afterwards. In January, 1883, whilst still at Shanghai, he became poorly, suffering from diarrhœa and dyspepsia. From that time onwards his course had been a downward one.

In a letter dated December 4th, 1883, my friend Dr. Henderson, of Shanghai, writes:—
“S. W. is suffering from chronic diarrhœa of many months’ standing. The motions for weeks at a time will only average one a day, but this one is always copious, pale in colour, sometimes putty-coloured, never formed. Every now and then he has an exacerbation, when the motions become frequent, copious, and watery. He has had a sore aphthous condition of the tongue at different times during his illness, and frequently suffers from stomachic dyspepsia, complaining of a feeling of rawness along the œsophagus. Nothing has benefited him much, and he has tried many remedies and changes of diet. He has lost flesh considerably. I note among his prescriptions

rhubarb, magnesia, and peppermint, liq. pepticus, bismuth, and arsenic, catechu, and purgatives, as grey powder and the like. I have recommended his return to Europe as absolutely needed for his restoration to health."

The voyage home had done him no good, his symptoms having become aggravated.

When I saw him he was thin, somewhat emaciated, very hollow-eyed, haggard, and feeble-looking. He complained of frequent diarrhœa, dyspepsia, and weakness. His mouth was tender, and his tongue very clean and red at the tip. He had all the aspect of a man whose health was thoroughly broken by a chronic exhausting disease. He had been one day in London, and had had several motions during the night.

Physical examination revealed no organic disease in the thorax or abdomen; no albuminuria; temperature normal. There was considerable flatulent distension of the bowels, and flatulent bulging, in the epigastrium more particularly.

He was ordered appropriate diet (as under-noted),* and to lie on the sofa in a well-warmed room, and to keep himself well covered.

* To begin with, he was kept for a fortnight entirely on the sofa in a warm room and placed on the following dietary:—
January 26th, milk, 8½ glasses; arrowroot, 2 basins; eggs, 2;

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January 23rd.—There were three motions.

24th.—Three motions. The one passed in the morning was copious, frothy, thick pea-soup consistence, partly putty-coloured and partly of a leaden or light spinach colour.

25th.—Four motions. The morning stool which I saw was separated into two parts; one a putty-coloured mass, and quite separate from it a thin watery mass.

Ordered a pill containing 1 grain rhubarb with ext. taraxaci twice to-day. To-morrow morning tinctura rhei \mathfrak{m} xv, with magnesii sulphatis gr. viij.

26th.—Two motions. The one kept was the smaller in quantity, porridge consistence, with a slightly thicker part in centre. To continue the pills and morning draught.

27th.—Three motions. The one kept was pulpy, no attempt at formation, not frothy, and with a very slight yellowish tinge. A pill containing $1\frac{1}{2}$ grains rhubarb twice to-day, but not the morning draught.

beef jelly, 1; bisenit and cake added. On February 14th stewed apples and cream were added. On February 27th pancakes were added. On March 4th a boiled egg, toast and butter added. On March 8th fish was taken for the first time. On March 9th grilled bacon and a poached egg added.

29th.—Three motions. The motion kept was large, fæculent, semi-solid, but not formed, pale, but not putty-coloured, and with a faint tinge of yellow.

30th.—Two motions. The one kept was solid, in a round heap, the upper part showing a small thin formation. Colour pale and milky. Pulse fuller. Feels very hungry.

31st.—Two motions, a small one last evening and a large one this morning; whitish, but solid, although not in cylinders.

February 4th.—During the last few days the stools have been getting more solid. Yesterday and to-day one motion daily. The motions cylindrical, with a little mucus and blood on the surface. The motions cause soreness in passing, the soreness lasting some time. Takes $1\frac{1}{2}$ grains of rhubarb in pill once daily.

6th.—Motion (one daily) quite formed and copious, but not hard. Still streaks of blood and mucus on it, and soreness of rectum continues.

On February 8th he left for the south of England with instructions to continue the diet.

On February 24th he wrote that he continued to progress with the exception of a relapse of two

APPENDIX. days' duration, during which time the motions became loose. He attributed that to having taken $1\frac{1}{2}$ grains of rhubarb pill, which he thought he required. The motions were white though hard and formed. He was advised to begin cautiously a little more solid food, toast and butter, and a boiled egg. He now weighed 149 lbs.

April 16th. — Returned to town. He now weighed 156 lbs., having gained 2 lbs. in one week. Pulse about 80, regular, but intermits, losing about one beat in fifteen seconds. Tongue clean, still a little bare about the point and edge. Is able to eat for breakfast two eggs, toast and butter, and coffee; for luncheon, fish, bread and butter, and a glass of milk; at 5 o'clock two large cups of tea and a sponge cake; for dinner, soup, fish, stout, fruit, rice, and bread and butter. Ordered to try meat once in two days instead of fish.

May 1st. — For ten days took beef every second day; for the last four days has taken beef once daily. He now takes four glasses of milk daily; meat at luncheon; soup, fish, and pudding at dinner; eggs at breakfast, and bread and butter at tea. Tongue clean, but has almost entirely lost the redness. Still gaining weight, putting

on a pound each week. To take cauliflower with his meat. APPENDIX.

June 5th.—Weight 154 lbs. One motion daily, solid and natural; occasionally the colour is somewhat light; twice lately the stool was a little loose.

He now began to get back gradually to an ordinary diet, and continued well. In January of the following year he had a slight derangement of the liver followed by a recurrence of diarrhœa, but recovered within a week by taking several small doses of rhubarb and going on general milk diet. Since then he has enjoyed uninterrupted good health.

The unusually favorable result in this patient's case I attribute to his placing himself unreservedly in my hands for treatment from the first, and to the scrupulous fidelity with which he carried out my instructions.

CASE 6.—P. H—, æt. 42. Seen January 12th, 1885. Ten years ago he went to Ceylon, where for four years he enjoyed excellent health. After that time he began to suffer from dyspeptic symptoms, which lasted for three years. During this period he suffered from soreness in the mouth

APPENDIX. and more or less diarrhœa. He then left Ceylon and came to England.

While at home his health improved, and he went to reside in a mild climate in the south of the United States. The food there "did not suit him." His dyspeptic symptoms got worse, and he returned to England. After being nine months in England he got fairly well, and went to India. For four months after his arrival there he considered himself well, but the symptoms again began to appear, and after three months' illness he returned home. He arrived in England a week ago.

He was a tall, gaunt, cadaverous-looking man, with hollow cheeks, shrunk orbits, staring eyes, with blue pearly conjunctiva. His speech was thick on account of the soreness of the tongue, his voice hoarse, his pulse 60 and feeble, and there was great emaciation. His legs were œdematous from the ankles to the knees. The skin of the body was dry; that of the legs was particularly rough, harsh, dark, and wanting in elasticity. His usual weight before he became so feeble was between ten and eleven stones. When last weighed he was very slightly over eight stones. (He is six feet high.) Tongue smooth, clean,

marked all over with crevices. No papillæ visible. APPENDIX.
Suffers much from his mouth and tongue.

The man was in a state of extreme weakness and debility, his natural mental firmness of character greatly enfeebled, and his power of sustained thought much impaired. The malnutrition of the brain was very apparent in the expression.

He had been treated by various methods, and by a succession of medical men. All the ordinary remedies for dyspepsia appeared to have been given, and his diet had been variously modified. From the time that he first became ill in Ceylon up to the present time he had probably never been entirely relieved of his symptoms, the degree to which he was affected depending greatly on his diet. I sent him to the country with the injunction to swallow nothing except pure undiluted milk, and of this he might, if he could, take as much as twenty-two glasses in the twenty-four hours. He was to report to me in a month.

On February 9th he wrote me that he had lost all tendency to sickness and diarrhœa. He had been latterly troubled with constipation, and had never required to get up during the night, a matter which had previously given him great

APPENDIX. annoyance. He reported that he had gained 11 lbs. in weight, and was much fuller in the face, being more like what he used to be before the illness took hold of him. He still felt unable to walk, and his legs swelled a little towards evening, more especially about the ankles. He had only been out of the house about three times, but had not been able to remain out long, and had soon returned. He was craving for solid food. I directed him to continue the strict milk diet for another month, and then to write again.

On March 11th he wrote that he had adhered to the milk diet for the two stipulated months. The first three weeks he did not take any exercise out of doors, and did not feel the want of solid food very much. After that time he began to walk short distances, and on several occasions violated his orders by eating a little bread and butter. For the last ten days he had been strict. He could not walk much, or use either his arms or legs without feeling very stiff for days afterwards. The legs now do not swell. He now weighs 11 st. 10 lbs.—rather more than his usual weight when in good health. He has had neither diarrhoea nor pain since he began the milk diet.

He felt despondent and nervous, craved for

solid food, and begged that some relaxation might be made in his diet. He was allowed to add farinaceous food to the milk.

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On March 21st he reported to me that his weight had gone up to 12 st. 5 lbs., that he was gradually getting stronger on his legs, and that he could walk two miles a day. He was craving for meat, and begged that it might be allowed him. I directed him to make no change in his diet.

On April 4th he wrote that he was walking four or five miles a day, but was troubled with stiffness afterwards. His ankles swelled very little. The only thing that troubled him was the restless condition of his nervous system, feeling easily put out, and not having his nerves well under control. He craved for meat and fish. I have no record of the answer I made him; but there is no doubt that, in accordance with my usual habit in such cases, I advised a gradual return to solid food, beginning with fish.

This man called on me on May 23rd. He was so altered in appearance that I did not recognise him when he entered my room. When I had seen him last he was a poor, weak, emaciated, vacillating, feeble creature. When I saw him

APPENDIX. to-day he was a firm, vigorous man; strong on his legs, strong in his voice, decided and active in his movements, spoke with decision, and thought quickly and clearly.

He was now perfectly healthy. On the previous day he had had to his breakfast a pint of milk, two eggs, bread and butter; to his luncheon half a sole, bread, and potato, and a small piece of Gorgonzola cheese; to his dinner clear soup, fried sole, and a small piece of roasted mutton. The bowels generally acted twice a day, but the motions were healthy.

I saw this man several months afterwards, when he called to ask my advice about taking up an appointment abroad, and he was then still in perfect health.

PSILOSIS LINGUÆ ET MUCOSÆ INTESTINI.

APPENDIX.
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GROUP II.

CASE 7.—A man æt. 41, who had been in China for twenty years, with a visit to England for eighteen months after ten years' residence. He occasionally had diarrhœa in Hong Kong, which got well with milk diet. He arrived in England in summer quite well, but when the weather became cold in October he got diarrhœa, having about three motions daily, which were, however, never very loose. He did not diet strictly until the date of his visit to me. During this time he had lost two stones in weight. With a heavy great-coat he then weighed 10 st. 10 lbs., his usual weight when in good health being 174 lbs. He described his motions as being yellow, pultaceous, and sometimes large in quantity, passing them specially during the night. The tongue was smoother than natural, not furred, but, as a whole, not red or glazed, and scarcely cracked. On the surface of the right side, about the middle of the tongue, was a deep sinuous cleft, stretching longitudinally for over an inch. This cleft was very red, and looked as

APPENDIX. if it bled. Under the tongue in front were several projecting pustules, and several patches of rose-coloured raw-looking surfaces. These made the tongue so tender that he could not protrude it. The inner surface of the under lip was on the whole pale, with several small red patches and two pustules.

The skin of the abdomen was lax and wrinkled, and there was a slight bulging in the region of the stomach. The hepatic dulness was very much diminished.

The patient would not at first consent to a strict milk diet; but the nearer he approached to exclusive milk diet the better he was. When I saw him again after he had been nearly four weeks on milk diet, with cocoa, arrowroot, rusk, new-laid eggs, and plain puddings and biscuits, the diarrhœa was much less, but the motions were seldom formed. I found the tongue considerably improved. The pustules were on the under surface, but he could now protrude the tongue. He remarked that he had found an increase of diarrhœa after taking pudding. About this time he was persuaded to put himself on milk diet; and he wrote me a month later that under this diet his general health had much im-

proved. He had gained 9 lbs. in weight. The motions were small and formed, but remained light in colour. The tongue was still tender and red, with ulcers on the mucous membrane of the lips. APPENDIX.

During the next fortnight his general health still further improved. There was one natural motion daily. The tongue was pale red, and slightly covered with very scant epithelium. Just at the tip it was still rosy red in colour. Encouraged by this improvement, he ventured on a diet exceeding in every respect that which I recommended. This diet included minced lamb, potatoes, spinach and cabbage, and puddings, as well as milk. Notwithstanding this injudicious food, he did not at once lose the improvement that had been made. The motions were generally formed, and there were only two daily. I urged him to confine himself to milk, with a little farinaceous food, until the motions became hard and solid.

He passed out of my observation for about six months; he had never been well in the interval. He had a lumpy motion in the morning, with a loose, large, yellowish motion in the evening, passed with pain. He had not been careful in his diet, with the exception of a period of three

APPENDIX. weeks, when, alarmed by the aggravation of his symptoms, he put himself on exclusive milk diet, and whilst on it he considerably improved. After that period I persuaded him to come more directly under my observation. I found that he passed pulpy, whitish, clay-coloured, and very offensive motions. The tongue on the upper surface was of a pale rose or pinkish colour, running indefinitely into whiter parts, not glazed. On the under side of the tongue, on each side of the raphe, there were one or two circular macerated-looking spots, of a deep red, streaked with white, and of about the size of a split pea. Towards the left, on the under surface, there was an irregular patch, nearly as big as a sixpence, well demarcated, with little islands of epithelium in it, and its borders were slightly whitened. The other parts were of a deeper red than usual. There was a smaller patch under the right surface of the tongue, further back. On the soft palate there were erythematous patches.

*Causes of
relapse.*

The record of the case from this time gives a series of slight, temporary improvements, so long as the patient remained in bed and kept to milk diet. Amongst the causes of a series of aggravations of his disease were—a relapse from

refusal to have a fire in his bedroom in the mornings (in March)—a long walk, from which he returned very fatigued—attendance at a public meeting, which took him out of the house for five hours, during which time he took biscuits instead of milk, and the eating of “butterscotch” and new potatoes. At a time when he was supposed to be on milk diet he took strawberries and spinach, &c.

APPENDIX.

He became steadily more emaciated and feebler, and the area of hepatic dulness became so small that it was almost impossible to detect it. He suffered from dyspeptic symptoms, and looked haggard and wretched. The tongue became quite bare, although not very red, with a number of small cracks, but free from blisters or eruptions. At this time he passed out of my observation. I continued to hear from him at long intervals, but he could never record any satisfactory improvement, and finally he died in the south of Europe, where he had gone to escape the English winter.

CASE 8.—A man *æt.* 57, who had been thirty years in India and latterly in Ceylon, with four visits home during that time, had suffered from

APPENDIX. indigestion and morning diarrhœa for a considerable time before leaving the East, and had lost weight. When he returned to England he was suffering from a certain amount of diarrhœa, although his general health was not much affected; but shortly after arrival his mouth became sore, and the diarrhœa became worse. His mouth continued to get sore, more or less continuously, for three years, not remaining well for more than a fortnight at a time. After being for three months on milk diet, with regular solid motions, he tried butter and stale bread, which immediately caused diarrhœa, so he returned to the milk. He went on with milk diet for nearly three months more, after which time he was able to take bread without ill effects. He was now about two and a half stones below his normal weight. He continued gradually to improve, until he was able to take milk, bread, eggs, and stewed fish, on which diet he felt strong, and was gradually gaining in weight. During some very cold weather he was exposed to a sudden severe chill, which brought back his diarrhœa. He was again put on milk diet, and was recovering, when he was seized with an attack of influenza, with pneumonia. He recovered from the pneumonia,

but never regained any measure of strength, and from that time onwards his progress was steadily downwards. The diarrhœa recurred, a prolonged course of milk diet failing to stop it. An attempt was made to strengthen him with Valentine's meat juice, given in addition to the milk, but with no good result. A course of meat juice expressed from the raw meat was then tried, but also without effect. Finally a little bread was given him, which he enjoyed much, and which for a few days seemed to give him more strength, but the diarrhœa became aggravated under its use, and he eventually sank from defective nutrition.

This patient was a bad subject from the beginning, his constitution being much worn by his long residence in India. Notwithstanding the exhausted and weakened condition of his system, his intestinal malady so far recovered under five or six months of continuous milk diet, that he was able to digest a sufficiency of nourishing food, and was gaining weight on it. He was even recovering from the effects of a severe chill which produced a relapse, when the unfortunate and severe attack of influenza occurred. After this attack he had little chance of recovery, as the disease seemed to have permanently crippled him,

APPENDIX.

*Fatal result
hastened by
influenza.*

APPENDIX. and to have left him in a condition in which
— repair of any lesion was practically impossible.

CASE 9.—A man *æt.* 36, who had been in Manila about fourteen years, with two short absences, consulted me in November, 1892. During his residence in Manila he had suffered twice from diarrhœa, recovering each time during a sea voyage; and in the four years previous to his departure he had had slight occasional attacks of no importance. A few days after leaving Manila he became constipated, and observed that the stools were white. This condition continued until his arrival in England, when he began to have diarrhœa. After he had left Manila a fortnight white ulcerated appearances occurred in the mouth, which continued until July, with occasional attacks of diarrhœa, when both the tenderness of the mouth and the diarrhœa were relieved by taking milk diet. Continuous diarrhœa set in in July, since which time he stated that he could not take milk, as it passed rapidly through him and caused intense flatulence. He found that stewed foods suited him best. He had undergone the usual routine treatment, and had taken bismuth, carbo-lic pills, &c., but with-

out any benefit. His usual weight was $10\frac{1}{2}$ stones, and he now weighed $8\frac{1}{2}$ stones. There were five to seven motions daily, with the exception of intervals once or twice a week, and on one occasion he had a healthy motion daily for three days. The stools were of a light yellow colour, like beaten-up eggs, and he described the smell as being like that of a stale grocer's shop.

When he came home he could walk for some distance without fatigue. Now he cannot walk a mile.

Dr. Wethered examined his blood, and found that the hæmoglobin was 68 per cent., the red corpuscles 2,000,000 per cubic millimetre, and the proportion of white to red 1 in 160.

*Enumera-
tion of blood
corpuscles.*

On account of the patient's difficulty with milk diet I sent him to a Nursing Home, where it was found that, properly administered, milk could be very well tolerated; and within a fortnight he was able to take six pints of milk a day, and the motions had become very large, solid, and whitish, with a slight tinge of yellow. After another fortnight he was able to take and digest from eight and a half to nine pints of milk a day. He was rapidly gaining weight, and his motions were always solid or firm, and of a pale yellow colour.

APPENDIX. The steady, unbroken progress the patient was making was interrupted by the necessity of his immediately leaving for the East. He left England very much against my advice, because I knew that he had not recovered sufficiently to undergo fatigue or any change of diet with impunity.

The patient wrote me after his arrival in Manila, to say that his mouth was always more or less inflamed, although sometimes the inflammation was so slight as to be barely perceptible. He had diarrhoea about three times during the voyage, which was a long and tedious one, but it was never severe, and only lasted two or three days. In the same letter he wrote a description of his tongue, which is worth quoting. The inflammation in the mouth, he observed, has all along followed exactly the same course:—"First about ten days' increase, barely perceptible from day to day; when it has reached its worst it is stationary for about three days, then there comes about ten days' decrease, the inflammation of the mouth generally healing, except in one, two, or three spots, from which the inflammation spreads again. Where there are ulcers the inflammation seems to concentrate, and they soon get well,

much quicker than the inflamed spots, where no ulcers form. Twice a thick skin has come off in pieces from my tongue, covered with mucus like the white of an egg."

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I received another letter from this patient a year subsequently, in which he announced his cure, after some very unpleasant experiences. Shortly after his arrival in Manila he went to sulphur springs to drink the waters, at the same time taking rice, milk, fish, and bananas. This diet did not seem to have any marked effect, and he lost a little in weight. A few days after his return from the sulphur springs he had a violent attack of diarrhoea, which confined him to the house for a month. Towards the end of this month he noticed the first symptoms of improvement. The painful irritation of the stomach to which he had been accustomed became less and less frequent, and some days it left him altogether. About this time he procured and took the secret remedies of a man in Shanghai, who has acquired some reputation as a "sprue curer," and whilst taking them the motions became hard. This temporary improvement was followed by a violent attack of diarrhoea, different in character from anything he had previously

APPENDIX.

had. The first night of the attack he must have had twenty movements, the stools being of an olive-green colour, very much like spinach. He then lived entirely on peptonised milk for two weeks, and picked up sufficient strength to attend to his business; but the milk digested badly, and the stools were like heaps of mortar. He then resumed the secret remedies from Shanghai, and improvement began, and lasted for about two weeks, when he again commenced to lose weight and strength. He had feverish symptoms every afternoon and night. He again resolved to try milk diet, but he could not digest it. The diarrhœa returned with greater force than ever, and he became so feeble that he could hardly move from his bed to his night-stool. The milk was then stopped, and he was put on chicken broth, arrowroot, and large doses of bismuth. His weight went below 100 lbs., and his medical attendant despaired of his life. After about a week of this distressing condition the diarrhœa was checked. He left Manila intending to go to Europe, and sailed from Hong Kong *viâ* Yokohama to America. After leaving Yokohama he commenced improving very rapidly. His diet consisted then almost entirely of fish

and bread. He gradually began to take other food, and on arriving at Vancouver he weighed 123 lbs. He could eat almost anything, though still suffering from flatulency. The inflammation in his mouth and throat had continued up to this time, undergoing the usual cycles of improvement and aggravation. When he arrived at Vancouver his mouth was well. A few days afterwards the inflammation commenced again, but only lasted a week. When he wrote (four months later) there had been no return of it. He gained weight and strength so rapidly that he decided to remain on the Pacific coast, where he became so well and strong that instead of going on to England he returned to Manila. Whilst on the Pacific coast he improved so rapidly, that he states that within ten days he gained 20 lbs. His weight, which at his worst was below 100 lbs., increased in less than four months from that time to 153 lbs. For some time he suffered from flatulency. When he wrote his recovery had been entirely uninterrupted for four months, and he expressed himself as being well and as strong as he had ever been in his life. His medical adviser in Manila regarded the very acute symptoms from which he suffered

APPENDIX.

*Recovery
from psilosis
following an
acute attack
of diarrhœa.*

APPENDIX. before leaving for his sea voyage as of a different nature from those which are symptomatic of psilosis, and considered that “the stronger inflammation assisted to drive out the weaker.”

This very instructive case should be well studied by physicians who consider the psilosis linguæ et intestini to be identical in its nature with the forms of tropical diarrhœa known as diarrhœa alba, &c.—psilosis intestini. The opinion given as that of his medical adviser at Manila commends itself as affording some explanation of the very remarkable recovery that followed the acute attack of diarrhœa.

CASE 10.—The following case is related as an example of psilosis in which the diarrhœa was not the most prominent symptom, although the motions were never natural while the disease lasted. The chief symptoms were those of dyspepsia and soreness of the tongue. The patient, who was under thirty years of age, had been eleven years in the East. Two years before leaving Manila, where she had resided for some time, symptoms of dyspepsia and debility occurred, but there had been no diarrhœa except for a few weeks the year before she left.

Just before leaving Manila the mouth began to get sore, and this soreness had continued. When she consulted me the soreness of the mouth had lasted about four months. Blotches had been appearing on the tongue, which were made very sore by taking wine or salt. This tenderness varied in intensity. When the condition was very bad, everything that was taken into the mouth hurt it, and the tongue was the seat of a stinging sensation. The throat was sore and felt rough. The motions were stated to be natural, except when food disagreed. Curry particularly increased the soreness of the mouth, though it was said to be taken in a very mild form. The dyspeptic symptoms became very distressing. After her arrival in England she had been under constant medical treatment for these symptoms. Her diet had consisted latterly of chicken and pheasant, but no improvement had taken place.

On consulting me, almost the first words that were addressed to me were—"Now I must tell you that there is no use speaking to me about milk diet. Every medical man who has attended me has soon satisfied himself that I am unable to take it. Even as a child I could not take milk; it is repugnant to me, and I cannot digest it." I

APPENDIX.

APPENDIX. saw at once that this was a case in which no good could be done by simple occasional advice, and I recommended the patient to enter a Nursing Home, where strict care and observation could be exercised. Her appearance indicated fairly good health and condition, but the pulse was unusually weak. The tongue was large and thick, and very uneven on the surface. The whole dorsum was irregularly mapped out into unequal fields by deep gashes in the epithelium, but these were not bare, and did not bleed when touched. Areas in these irregular fields were covered with large exuberant papillæ, which were mostly covered with thick white epithelium. After the patient was received into the Nursing Home it was found that the motions were very large, pultaceous, and of a whitish putty-colour, full of fermentation, with the remarkably penetrating, peculiar odour which is a characteristic of true psilosis. One or two of these motions were passed daily, but there were no symptoms of acute diarrhœa.

*Enumera-
tion of blood-
corpuscles.*

Dr. Wethered examined the blood, and found that the hæmoglobin equalled 70 per cent., the red blood-corpuscles 1,820,000 per cubic millimetre, the proportion of white to red 1 in 100.

In spite of all the protests of the patient, I insisted that nothing should be swallowed except milk. Koumiss, prepared in London, was given at first in very small quantities, and was retained. But the pangs of hunger from which the patient suffered, and which were impatiently endured, were only relieved for about a quarter of an hour by draughts of koumiss. For the koumiss I then substituted aërated milk, which was digested; and the acute sensation of hunger could be staved off by a glass of this milk for about an hour and a half. After a few days we were able to substitute ordinary milk for the aërated milk, and thirteen days after this treatment I had noted as follows :

APPENDIX.

*Koumiss
given; then
aërated milk.*

The patient has been taking about six pints of pure milk daily. The motions have become solid, and the offensive smell is gone. The tongue is less swollen, and the thick patches of fur intersected with cracks are clearing off backwards from the tip. The surface which has been left clear by the disappearance of the fur is pale red, with very numerous, prominent, swollen, œdematous, and large papillæ, giving it an almost mulberry look.

The patient, who was naturally a strongly

APPENDIX. built, healthy person, found it necessary to increase the milk, taking eight and a half pints daily.

After six weeks' treatment the large solid white motions were observed, for the first time, to have a yellowish colour. The tongue was clean except at the back, the ragged appearance was scarcely marked, the large papillæ were fewer in number, and not so œdematous. After two months' treatment the constipation became painful, the motions being of a light yellow colour. A change was then made in the diet. It had been found that a little bread could be borne, and bread and butter was ordered four times daily, with two cups of arrowroot, two cups of beef-tea, and three glasses of milk. The yellowish colour of the motion became gradually deeper, and three months after the treatment was begun the diet consisted of arrowroot, bread and butter, cauliflower, and fish. After three and a half months the motions were healthy and of a light brown colour. The tongue was pale—a natural fur on the back ran more gradually into the anterior part, which was free from fur. The thick-set papillæ were now very short and the furrows very shallow. Chicken and milk

puddings had been added to the diet without inconvenience. After five months' treatment the tongue had a natural appearance. Lamb, apples, cherries, strawberries, and fresh eggs were soon added to the diet without causing any relapse. From that time onwards the patient has remained practically well, has undergone much fatiguing exercise, and has taken practically no care about diet, although there have been one or two reminders that very indigestible articles of food, and particularly a frequent consumption of hot curries, should be avoided.

CASE 11.—A man *æt.* 36, who after being several years in Manila was attacked with diarrhœa, but improved under diet and medicinal treatment and returned to England, where he remained for a year and continued in good health. He returned to Manila and was well for six years there, when he was again attacked with diarrhœa. This time it was accompanied with redness and soreness of the tongue. After medicinal treatment of various kinds (without any effect on the diarrhœa) he made a long sea voyage; and while at sea the diarrhœa was arrested, apparently by taking bismuth. On arriving in England he was

APPENDIX. fairly well, although there was a tendency to occasional attacks of diarrhœa. He again returned to Manila, where within a year he was again attacked by diarrhœa and sore tongue. Under a diet of milk, eggs, and rice, the diarrhœa became lessened, the tongue improved, and he increased in weight from 121 lbs. to 146 lbs. A visit to some medicinal springs near Manila, with a strict milk diet, seemed to effect a complete cure, but on returning to Manila the diarrhœa reappeared. He then returned to England, where he arrived in a very weak condition, and the tongue, throat, and mouth were red and swollen. Under a diet of milk and farinaceous food and rest he made considerable progress; but finding that he did not get quit of the disease he came to me for advice, and I put him on strict milk diet for three months (June, July, and August). After about six weeks' treatment the motions became very firm, and for the following six weeks, whilst on exclusive milk diet, he had hard motions which were frequently streaked with blood. The quantity of milk which he seemed able to digest was six pints a day, a larger quantity producing flatulence and discomfort. After the milk diet he was able to take

bread (beginning with a very small quantity and gradually increasing it) and fish without any relapse. When steak was added to the diet for five or six days, the diarrhœa returned for a week, and the motions were unsatisfactory for a second week. After a few days' return to milk diet the condition of the motions became satisfactory. Fruit produced a relapse. The diet on which he did well was—bread, then fish, then chicken, then coffee and milk, and cauliflower, and for about a week a mutton chop every second day. APPENDIX.

I have a note of January 16th, after six months' treatment. His diet then consisted of coffee and milk, bread and butter for breakfast; fish and bread in the middle of the day; chicken, partridge, or pheasant in the evening, with cauliflower and bread. He was on this diet for a month, and during that period the motions had been solid and regular, and of a darkish yellow colour. His weight was 11 stones. His tongue had a slight natural fur. From that period onwards his recovery was uninterrupted, and the cure has been complete.

The nature of the diarrhœa, when he first came under my observation and during slight relapses,

APPENDIX.

*Persistence
of white
colour of
the motions.*

was characterised by light yellow, offensive motions, not very profuse. When the diarrhœa subsided and the motions became solid the colour remained for a considerable time white, becoming very gradually slightly yellow, then of a decidedly yellow tint, and eventually dark brown. The condition of the tongue improved *pari passu* with the cessation of the diarrhœa.

CASE 12.—A well-built man æt. 58, after having passed twenty-eight years in China, began in the spring of the twenty-ninth year to get morning diarrhœa, and simultaneously the mouth got sore and the tongue tender. He returned to England during the summer, and consulted me in the autumn. The tenderness of the mouth had sometimes disappeared, but soon returned again. From the beginning there was soreness of the gullet in swallowing. When I saw him the tongue was of a dull brick-red colour, and creviced with broad and shallow curves about the diameter of a pin's head. On the right side, far back, there was a sore part, and there was another in front. Under the point of the tongue there was a whitish epithelial slough, about the size of a lentil. In the abdomen, at a point about two inches to the

right, below the umbilicus, there was a distinct moderate tenderness to pressure. The evanescent nature of the patches in the tongue was shown by the fact that within twenty-four hours, on a diet of milk, beef-tea, and a little cauliflower, they had become smaller, and the epithelial slough on the under surface of the tongue had almost entirely disappeared; but the throat was still sore, and the motions were yellowish and semi-fluid, but not large. This patient was able to take, almost from the beginning, without injury, a small quantity of farinaceous food with his milk, and his progress was unusually rapid. Within a few days after treatment the motions became solid; but he had a relapse after ten days through washing, stripped, in a bedroom at a temperature of 50° Fahr. After three or four days the motions again became solid, one stool having a yellowish tinge being passed daily. Within a month he was able to take eggs, biscuits, bread, and a small piece of steak, in addition to his milk. His recovery was uninterrupted, and the cure complete.

The unusually favorable result was no doubt greatly due to his coming under treatment, under favorable climatic conditions, within six months

APPENDIX.

*Favorable
result from
early return
to England.*

APPENDIX. of the first appearance of the symptoms. When I first saw him his general condition was fairly good, and his strength not greatly reduced.

CASE 13.—A ship's engineer, æt. 33, when on board a trading vessel at Singapore, where he had been about four years, became suddenly ill. His illness began with slight diarrhœa, which occurred chiefly from 2 to 10 a.m. At first there were two or three motions daily, but the diarrhœa got worse. The stools were light-coloured, almost white: he could see grains of sago and undigested food in them. The mouth got sore three or four months after the diarrhœa began, but there was no pain in swallowing. The ulcers were very painful from the first, and sensitive to hot or cold substances. He was obliged to give up his employment and return to England. When I saw him there was an ulcer on the mucous membrane of the lower lip on the right side half an inch long, and a quarter of an inch broad, and a round ulcer on the mucous membrane of the left cheek the eighth of an inch in diameter. These ulcerated appearances were not really excavated ulcers, the appearance of ulceration being caused by a thick greyish-white

patch of disintegrated mucous membrane. There was hyperæmia round the patch on the cheek. The tip of the tongue and the under surface of the tip were bright red. His weight had gone down from 12 stones to 9 stones.

APPENDIX.

The diarrhœa was very soon arrested by milk diet, and four days after beginning the milk the mouth ceased to be sore, and the patches on the cheek and lip disappeared. He made almost uninterrupted good progress.

In this case beef-tea produced a relapse, at a time when he could take oysters without any renewal of the diarrhœa. The oysters he tried at his own instance, and finding that they agreed, I was able to allow him a diet of milk, arrowroot, a few oysters, and wheaten bread or biscuits, on which diet he did very well.

Oysters well borne when beef-tea produced relapse.

After five months he wrote me saying that in addition to arrowroot and bread he was taking steak twice a day, varied with boiled mutton, and was eating cauliflower. The stools remained hard, but were very light in colour.

I heard from him in the following year that his health was quite re-established. In this case the patches on the cheek and lip were a marked feature; and it is interesting to note that at a

APPENDIX. time when beef-tea produced a relapse oysters were taken, and were well borne.

CASE 14.—A naturally strong, healthy man, in the prime of life, had been seven years in China, during the last three of which he had suffered from periods of diarrhœa, alternating with firm motions, and from dyspeptic symptoms of various kinds.

Eighteen months before I saw him the mucous membrane of both lips, and his tongue, became sore. He did not lose weight and his strength kept good. When I saw him his mouth had improved, but there was still a tenderness to wine and curries, &c., and there was slight leukoplakia. There was some aching pain in the stomach in the morning.

I put him tentatively on milk diet for a short period with unsatisfactory results.

He went to live in the country, taking much exercise and living very cautiously. He found he could be well for days together on bread, butter, poached eggs, and beef tea, and some time afterwards he wrote me saying that on a diet of two poached eggs, bread, butter, and water for breakfast; bread, butter, and water at 11;

bread, butter, and water at 1 ; bread, butter, and water at 4 ; fish, bread, butter, and milk pudding at 7 ; bread, butter, and water at 11, and a small amount of vegetable at lunch and dinner-time, he did remarkably well, and had only two soft motions in three weeks. As a rule there were two well-formed stools a day. This diet was practically suggested by himself, as I can hardly say, except when he was a few days on milk diet, that he was ever really under my care. But his symptoms recurred, and whilst he was still suffering he returned to China.

Some years afterwards he again returned to England, and was kind enough to call on me, to show me how well he was. He told me that after having been four years on milk diet and farinaceous puddings, eating very little fish, he began to be troubled with sour eructations. For this symptom he got into the habit of taking bicarbonate of soda, and finding that it gave him relief he increased the doses to half an egg-spoonful with every meal, and three months after he began this habit he was well. His weight had increased from 150 lbs. to 172 lbs., and when he saw me he had for a long time been able to eat anything.

*Recovery
attributed
to taking
bicarbonate
of soda.*

APPENDIX. I record the case on account of the curative effect assigned to the bicarbonate of soda, and to show the effect of a good constitution in throwing off the disease.

CASE 15.—The following case never came under my own observation, but was reported to me by Dr. Miller, of Largs.

A largely built man, æt. 54, grey-haired and emaciated, consulted Dr. Miller, who recognised in his symptoms psilosis as it had been described by me in the papers I had written on the subject.

This man had not actually resided in China, but had served on board a steamer trading between Hong Kong, Foochow, and Formosa.

A year previously he had been attacked by diarrhoea, the motions being very loose, light-coloured, and frequent. Then he had sore throat, for which poultices and alum gargles were tried without benefit. After two months he went into hospital, where his diet was restricted to milk with a little arrowroot. He improved and rejoined his ship after two months. Finding that he got worse on the voyage, he came home by the mail steamer, and arrived in Scotland in March,

1890. He was not on strict diet on the way home; and when he arrived he took a diet of bread and butter, cocoa, and oatmeal porridge. He became rapidly weaker. The daily stools, which numbered from four to eight in the twenty-four hours, were sometimes very loose, whilst at other times they were comparatively firm and well formed. He complained much of a choking sensation, and the difficulty of getting away white patches on his tongue and pharynx. The symptoms, both of the mouth and throat, became very troublesome. An attempt was made to arrest his symptoms, but he had reached such a stage of exhaustion that treatment was unavailing, and he sank within four days.

APPENDIX.

In this case the sore throat and diarrhoea, intermitting with formed motions, are characteristic of psilosis linguæ, and the case illustrates the fatal character of the disease in elderly people, and the bad results which follow a mixed diet during the active stage of the malady.

*Bad results
of mixed diet
in the early
stage.*

CASE 16.—A ship's officer, employed in sailing between England and China, arrived in England in the early spring. During the previous year

APPENDIX.

*Development
after arrival
in England.*

he had lost flesh, and his appetite had not been good, but he had no abdominal symptoms. On arriving in this country he went to the north of England, where he felt very sensitive to the cold. He then became affected with diarrhœa, which gradually got worse during the next three months, the stools being about three in number daily, and yellow and fermenting. On a diet of milk and light puddings the diarrhœa ceased. After the diarrhœa had stopped, his tongue got sore. He left again for Singapore a month later. During the voyage the diarrhœa returned, and he had to be sent to a hospital in the East, where he remained for three months. For the first fortnight he improved; then his appetite got worse, and his tongue became painful at the edges. When the tongue had been sore for a week the diarrhœa reappeared. On pure milk diet he got well in fourteen days, but had a relapse when chicken was added. Between that time and the time of my seeing him in the end of the year he had undergone a series of improvements and relapses. I found his tongue covered with fur, and only slightly red at the tip. The motions were solid and white. The mouth was not tender. He was at that time living on milk.

He returned to the north of England, and I did not see him again until a year or two afterwards. APPENDIX.

For a considerable time after I saw him he had lived on milk diet, with occasional additions of farinaceous food and chicken. When on milk diet he was generally well, and when he made additions to his diet he usually had slight relapses. I had no opportunity of watching him or treating him again until three years later, when I observed him closely for several days, and came to the conclusion that he had not suffered from psilosis for several years, but that his digestive power had been permanently injured, and that it was improbable he would be able to eat freely of ordinary diet for a long time to come. *Permanent injury to digestion after the disease had disappeared.*

In making a diagnosis in this case I had to rely chiefly on the history as related by the patient. From the description given to me I came to the conclusion that the symptoms pointed more to the Dutch than to the Indian variety of psilosis.

The permanent crippling of the digestive power which was left by the illness would almost certainly have been avoided if the patient had been under sufficient medical observation and care.

APPENDIX. I only saw him at long intervals, and did not have sufficient control of the treatment.

*Sudden
development
of symptoms.*

CASE 17.—I was consulted in the autumn of 1891 by a man æt. 60, who after he had been trading sixteen years in the East had settled in Shanghai for fourteen years. He had always enjoyed good health until the previous spring. In February, 1891, one day after an early luncheon, he became sick and vomited three or four times, and then had diarrhœa. He had never vomited before. He attributed his sickness to drinking beer for two days, a beverage which he had not been in the habit of taking.

The diarrhœa, which was severe at the commencement, continued to the extent of four or five pulpy motions daily. A week or ten days after the first symptoms had appeared the edge of the tongue became red, raw, and tender. The inner surface of the lower lip also became tender, but there were no sores upon it. As the disease continued, the changes in the condition of the tongue were sometimes very rapid, the appearances varying within a few hours. He at once began to lose flesh, and from the beginning of his illness till he left Shanghai, two months after-

wards, he had decreased in weight from 150 to 120 lbs. APPENDIX

When he reached England he weighed 116 lbs. The diarrhoea had continued all the way home, but the mouth was sometimes well. Since his arrival he had had an average of four motions daily, with intermittent soreness of the mouth. When I saw him, on October 7th, his speech was thick on account of the tenderness of the tongue, its surface being divided into a great many small fields by very shallow grooves; and there were traces of fur in the centre. The point of the tongue and the under surface of the tip were of a rosy red colour, and in the latter position there was a group of small herpetic-looking sores.

As he had been improving between his arrival and the time of my seeing him, I considered that his naturally healthy constitution and the change of climate had brought about a disposition to recovery, and I therefore tried him with a diet much less strict than the exclusive milk diet which I usually prescribe. I allowed him to have, in addition to milk, bread and butter, biscuits, eggs, and sometimes a little fish, and if he did well he was to try tentatively a little beef.

APPENDIX. On this diet the stools at once diminished to two a day, and four days after I saw him they began to be solid. The tongue was still a little sore, but not so sore as it had been, and he was feeling stronger.

On October 14th he, for the first time, passed only one solid stool in twenty-four hours; his tongue was better, and his appetite good. From that time he made uninterrupted progress. He gained 2 lbs. in the first fortnight after I saw him, and on the 2nd of December he weighed 137 lbs. By that time he had been extending his diet very considerably, occasionally eating vegetables, such as parsnips, potatoes, and turnips, which probably prevented his very quick recovery being even more rapid.

On the 31st of December his weight was 141 lbs., and he reported himself as being perfectly well.

This case is an example of the sudden onset of the disease, and shows how a strong constitution and a change of climate may sometimes conduce to a recovery, even without strict diet.

CASE 18.—I was consulted by a man æt. 55, who had spent all his life in tropical countries,

and who had at one time suffered from malarial fever. Two years after the last attack he began to suffer in Hong Kong from diarrhoea. He returned to Europe, and within a year the diarrhoea left him, and he went back to Hong Kong two years later. Shortly after he arrived there the diarrhoea returned, and then for the first time it was accompanied by soreness of the tongue and mouth, the tongue being more tender than the other parts of the mouth. These symptoms had persisted for seven years with varying severity. The soreness of the mouth was greatly aggravated by smoking, and he had never since it began been able to take anything hot. Wine of any kind aggravated the pain—champagne less than other wines.

The severity of the diarrhoea varied. When it was bad there were from seven to eight fluid motions daily. When he was at his best there was one soft, fluid, or pultaceous motion in the morning, of a light yellow colour.

Slight temporary improvements took place from short changes of climate, and when the diarrhoea was excessive he obtained relief from Dover's powder. He was naturally a strong muscular man, and his strength was not materi-

APPENDIX. ally diminished by the diarrhœa, but he began to lose weight, and from 210 lbs. came down to 180 lbs.

After his return to England the diarrhœa disappeared on two occasions, once with diet and hydropathic treatment, and again after being sent to bed (by a medical man whom he consulted) and fed on milk and chicken broth. After being well for some time on ordinary diet, he had occasion to make a short voyage, and had no sooner sailed than the symptoms returned.

Ten days before he consulted me he had met a physician who had attended him in the East, who suggested a diet of milk, eggs, and biscuits. On this diet the diarrhœa at once diminished. He had only one motion daily, partially formed, and very pale yellow in colour, and his tongue became much less tender.

The patient looked fairly strong. On examining the tongue I found it was smaller in size than usual, pale in the centre, and very scantily covered with epithelium. The point was bright rosy red and still tender. The mucous membrane of the cheek was pale and somewhat granular in appearance, and showed circumscribed white patches situated in a line near the

angles of the lips. The mucous membrane of the lower lip was the seat of an uncomfortable sensation, and was slightly granular. His pulse was 60, regular but not strong. The urine was free from sugar or albumen.

I advised a diet not exceeding fifteen glasses of milk daily, with one or two arrowroot biscuits, and that he should discontinue the eggs. On his second visit to me he reported that he had had regular motions once daily, occasionally twice. The motions consisted of long cylinders, about three quarters of an inch in diameter. At first these motions were very white, but latterly they showed a yellow tinge. The tongue was less tender on the dorsum; there was a beginning of fur, which showed itself in the form of slight patches of white epithelial débris, but it was redder than usual on the under surface. He was able to smoke with less discomfort, and was taking regularly about thirteen or fourteen glasses of milk daily. The urine, which was at first very pale, was slightly coloured and less in quantity. His pulse was 80, and regular, but not full.

When I saw him again, after an interval of a fortnight, he looked better, and his face had

APPENDIX. more colour. His tongue was a pinkish red, without fur, but not raw-looking. The tip was dark red, and had several prominent papillæ. Its veins were turgid and full.

The following extracts from my case-book show the further progress of the case.

July 26th.—He writes that for the last three weeks he has been taking twenty to twenty-one glasses of milk daily. He feels stronger, and has gained weight, but still does not feel able to do much writing. He has generally two motions daily, occasionally three. The first part of the motion is usually formed, but of small calibre. Sometimes it is not well formed, but is somewhat loose and straw-coloured. There is soreness at the orifice of the anus. The tongue and mouth feel better, although the tongue is still somewhat red about the tip, and the sides near the tip. There is an uncomfortable sensation of fulness and distension in the stomach, which is probably due to the quantity of milk, and he was recommended to diminish it slightly.

August 12th.—Continues to increase in weight, now weighing 208 lbs., a gain of 28 lbs. By some mistake, instead of diminishing the quantity

of milk, he has been taking twenty-three to twenty-four glasses a day. There is still a feeling of fulness and distension in the stomach. He considers that although the tongue is still slightly red, it and the mouth are practically nearly well. With the exception of one day, when there was a slight attack of diarrhœa, he has one motion daily, sometimes two. The first part of the first motion is generally well formed, the rest not quite so much so. The calibre is still small. He was instructed to try arrowroot and eggs cautiously in addition to the milk.

29th.—Has been taking the arrowroot and eggs regularly. There is only one motion daily, which is formed, and has a larger calibre. There is a more decidedly yellow colour in the stool. (The patient has for many years been troubled with psoriasis, but since he has been on the milk diet his skin has become supple and soft, and the psoriasis has disappeared.)

Disappearance of psoriasis while on milk diet.

September 19th.—Had recently a relapse of diarrhœa for two days, but since then there has been one well-formed motion daily. On decreasing the quantity of milk from twenty-four to sixteen glasses daily his weight began to diminish for a time, but again began to increase

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until he went up to 214 lbs. Latterly his diet has been fourteen glasses of milk daily, with arrowroot and two eggs. His last weight was 211 lbs. He feels much stronger, and can walk four or five miles daily without discomfort. He was recommended to add bread to his dietary, and after a time, if there was no relapse, to take boiled whiting once daily.

October 25th.—One motion daily, generally solid, although sometimes the consistence not quite perfect. Weighs 15 st. Walks two hours daily. Feels quite well, but is not yet up to much mental work. Good pulse. Tongue clean, but not red except at the very tip. His diet at present consists of ten glasses of milk, one cup of arrowroot, two eggs, fish once, and three or four slices of bread twice daily. Allowed cauliflower and sole.

November 22nd.—Diet now consists of eight glasses of milk, arrowroot, bread, four eggs, and cauliflower; two pears during the day, and fowl in the middle of the day. The motions are never large; occasionally they are not formed. To discontinue the cauliflower and pears, and to take fowl on alternate days.

December 6th.—Motions solid. To take un-

derdone beefsteak once a day, and to reduce the quantity of milk.

31st.—Since he began the beefsteak the motions have become thicker. Twice there had been a loose motion of a yellowish colour, and on each occasion on the day previously he had eaten some fat with the beefsteak, these being the only occasions on which he had eaten any of the fat. Noted that on the 20th there was a solid motion of a darkish yellow colour. To discontinue eggs, take white fish and beefsteak, carefully excluding fat.

January 31st.—Going on well. Diet now consists of *café au lait* and bread (without butter) at 8 o'clock; arrowroot at 9; glass of milk at 11; chicken, macaroni, bread, and a glass of milk at 1; glass of milk at 5; a small basin of semolina at 7, and another at 9.30.

March 14th.—Diet has lately consisted of coffee, bread, and butter at 7.30; bread, butter, and an egg at 9.30; chicken, with macaroni or rice, and sometimes mashed potato with milk, at 1.30; glass of milk at 5.30; chicken and rice, or potato or macaroni, with milk at 7; glass of milk at bedtime. For the last six weeks there has been one motion daily, only once there being two in

APPENDIX. one day. For an entire month they were perfectly solid, although within the last fortnight the motion has been occasionally somewhat loose. The colour is now getting darker, being more brown than yellow. Told him to diminish the quantity of milk and to take beef three times a week, cauliflower, semolina, and preparations of wheaten flour. From this time onwards there was no relapse. He ceased to practise any restrictions in diet, and his intestinal complaint was completely cured. In this year he had an attack of gout; and psoriasis, from which he had at one time suffered much, but which had not manifested itself during his previous treatment, reappeared in a severe and extensive form. It is interesting to note that the drugs which were given for these conditions, namely, rhubarb, iodide of potassium, and a course of sulphur externally and internally, produced no return of his intestinal symptoms. His recovery, therefore, may be considered complete.

This patient called on me some years afterwards. There had been no relapse.

CASE 19.—A young man, æt. 22, consulted me in the autumn. He was taken ill in the spring

of the previous year at Hong Kong with retching and purging, and a sensation as if his "inside were on fire." His tongue became sore, with "small lumps on it;" the inside of the cheeks was painful, and he could eat nothing hot, such as pepper or soup. A sea voyage to the north did him no good, and he was sent home, the diarrhœa having continued the whole time. APPENDIX.

When I saw him, on October 11th, he was subject to intermittent diarrhœa, there being sometimes diarrhœa for three or four days, and for the next three or four days the bowels would be regular. He described the motions as being light-coloured and loose, and of an oily appearance. His tongue was cracked in lines, and there was a little fur, the tip being red. As he had improved since arriving in England on a diet which was not strict, I did not put him on exclusive milk diet, but allowed him stale bread in the morning; in the forenoon a new-laid egg beaten up with milk and a little sugar; in the middle of the day arrowroot and milk; in the afternoon beef-tea thickened with vermicelli; at bedtime arrowroot with two arrowroot biscuits and milk, and to take a little milk at any time during the day if he felt he required it. Whilst on this diet I

APPENDIX. ordered him to lie down a great deal, and to be very careful not to get chilled.

On October 25th he reported that he had suffered much from indigestion after beginning the treatment, and that the diarrhœa had continued for four or five days. For nearly a week there had been no diarrhœa, but there was still a little indigestion.

By November 7th the motions were not only solid and light yellowish in colour, but the painful indigestion had ceased. A slight fur had appeared on the tongue, but it still looked cracked. He was allowed boiled whiting, coffee, and milk, in addition to his previous diet, and four days afterwards he was to take boiled fowl in the evening.

On November 16th he reported that he had one dark brown, well-formed motion daily; he had no pain and no distension, and felt quite well. The tongue still showed cracks or cuts on its surface, but they were not so deep nor so many. It was still redder than normal, and showed only a slight fur.

This patient was soon afterwards quite well, making a rapid, permanent, and satisfactory recovery.

This case shows the effect of youth and a

change of climate in promoting a cure even when the diet is not quite strict.

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CASE 20.—This patient first consulted me in 1883, and a very short note of his case was given in the first edition (see Case 3). He again consulted me in 1892. He had been some time in England, and had been leading an active life. He caught a severe cold in February, the result of which was that he began to suffer from various dyspeptic troubles. Although a lightly built man he had lost 17 lbs. in a short time. The diarrhœa was not severe nor continuous. When bad he had only three or four motions in twenty-four hours, passing fluid and light-coloured stools. He had been ordered a diet of plain food, puddings, fowls, fish, &c. I put him on restricted diet, and I noted (in November of the same year) that although he had got quit of the diarrhœa he did not get quite well. During the summer months he was well and strong, but chills brought back a relapse. During the autumn (on ordinary diet) the motions were solid and of a good colour; but about once a week there was a slight attack of diarrhœa. The mouth was raw and easily hurt, and smarted

*Recovery
without
strict diet.*

APPENDIX. after anything hot was eaten, or after drinking wine. The tongue was smooth, and divided into fields, with very delicate, transparent, silvery coating at parts.

I saw him again in midsummer of 1893. I learnt that he had had two bad relapses in December, with fever and diarrhoea. He got well in a fortnight on milk diet and beef tea, and remained well during January, February, and March. After that he again had a relapse, and he put himself for a few days on milk diet, beef tea, farinaceous food and pudding, eating little meat. Finding that he did not permanently improve he was advised to come to London, and to put himself under the care of an experienced physician, who, the patient afterwards informed me, looked upon his symptoms as due to latent malaria, and treated him with large doses of quinine. He was not benefited by this treatment.

*The case had
been treated
as latent
malaria.*

He consulted me again in October, 1894, and for the first time during his illness he put himself implicitly under my directions. His case by this time had assumed a very serious aspect from its long continuance and his gradually deteriorating strength. He was placed on exclusive

milk diet, and the result was for a short time very promising. For the first time for a long period he had a solid motion, and he rapidly put on weight. He was able to take large quantities of milk, and he increased in weight at the rate of about 2 lbs. a week, until he had gained altogether about 19 lbs. His history from that time onwards for more than a year was one of periods of relapse and improvement. He continued to implicitly obey my instructions. He passed through several intercurrent illnesses of a serious kind, and of a gravity which would have severely tried any man who had been in ordinary health.

His symptoms were frequently brought back by chill, to which his weakened condition made him specially liable; but his relapses and illnesses were invariably got over by strict attention to diet, always, when necessary, going back to pure milk diet, and gradually resuming the use of bread and other light digestible foods which I thought fit to order.

Eventually he came to a stage during which the relapses were very manageable and of short duration. Finally he reached a condition in which I satisfied myself that even in his relapses the

APPENDIX. symptoms were not those of his original disease, but were due to temporary irritation of a digestive tract that had been weakened by previous long-continued illness, the disturbing causes being sometimes food, but more usually the effects of chill.

*Impaired
digestion
left after dis-
appearance
of charac-
teristic
symptoms
of psilosis.*

The patient, who is a man of intelligence, has learnt to manage himself and to exercise care in diet, which enables him to enjoy, on the whole, fairly good health. The long congestion and irritation of the bowel, from which he had suffered so many years, has left behind it, as was to be expected, considerably weakened powers of digestion, but fortunately still sufficient digestive power to enable him to maintain a moderate amount of strength.

GROUP III.

Cases 21 to 26, illustrative of the variety of psilosis of the intestine known generally as diarrhœa alba, white diarrhœa, hill diarrhœa, &c.

CASE 21.—A man who had been nearly thirty years in China, and had had good health until the last two years of his stay there, was attacked by diarrhœa, which was followed by abscess of the liver, from which he recovered after operation. He then returned to England. After arriving in England, in the spring, he became gradually affected by symptoms of dyspepsia and chronic diarrhœa, accompanied with an irritable tongue. Five weeks of milk diet increased his weight 5 lbs. He was a small man, and had been 10 lbs. below his usual weight. His tongue was covered with normal fur. On milk diet his digestion became well, the diarrhœa was arrested, and he regained his usual health.

This case is typical of many instances in which patients first develop irritation of the mucous membrane on coming to England after long resi-

*Development
of symptoms
after arrival
in England.*

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dence in Eastern climates. The case was not one of true psilosis, but if the symptoms had not been arrested in time an intractable diarrhoea would almost certainly have resulted.

CASE 22.—An elderly lady, who had been home from India five years, consulted me on account of chronic diarrhoea. It had begun with a severe attack of diarrhoea at Simla some years before she left India. The motions were pulpy and yellowish—never very watery, but never quite formed. When the diarrhoea was worse than usual she had pain in the whole of the left side of the abdomen. The tongue was without fur, of a uniform pale red colour, and without any signs of localised rawness or ulcers. She spoke of the tongue as having been occasionally tender, with little white spots coming out and disappearing almost directly. There is no history of any persistent rawness of the gullet, or any sensation of the bolus burning as it passed down to the stomach. There was considerable dyspepsia. The mouth symptoms held quite a secondary place in the history she gave of her illness, and did not exist at the time I saw her. The case was a typical one of the Indian tropical

diarrhœa, as distinguished from true psilosis APPENDIX.
linguæ.

CASE 23.—This man, after having been five years in China, when in England began to suffer from intestinal catarrh. Whilst still suffering to a slight extent he returned to China, where he was well for three months in summer, and then he had a sudden severe attack of diarrhœa at a port on the Yangtse. After seven weeks' treatment and change of air he got well; but in the autumn of the following year he again got ill, and had to take a change of air before he could even get comparatively well. In the beginning of the following year he had another sharp attack, which was also controlled by treatment; but it was thought well that he should return to England.

During all these illnesses his mouth had never been sore. After coming home he consulted me, and I found that his tongue was large and flabby, with a thin, well-marked fur, but without prominent papillæ.

He told me that when he had diarrhœa his motions were light-coloured, and at first frothy. When they became solid they were of a light

APPENDIX. yellowish colour, but were never quite white. On suitable diet he steadily improved in strength, and returned to China.

CASE 24.—A member of the Indian Medical Service, after fifteen years' residence in India, during the last few years of which his health gradually deteriorated, was attacked by acute diarrhœa in September, 1888. As he did not recover satisfactorily, he took a voyage to Australia, but he got worse whilst at sea during the cold weather. After arriving in Australia he lived for five days on enemata, and then on peptonised milk, which cured the diarrhœa, but left him greatly emaciated.

He arrived in England in May, 1889, and lived for nine months on peptonised milk and farinaceous puddings, during which time there was no diarrhœa, but he suffered from pain, debility, and anæmia. He gradually added boiled fish, fried fish, and meat to his dietary, and got strong and up to his usual weight.

After the beginning of winter he began to feel sick, and whilst taking a diet of peptonised milk, about four pints daily, taking a proportionate quantity every hour, an acute attack of diarrhœa

set in. He continued taking peptonised milk for three months, and gradually recovered from the diarrhœa. He then cautiously returned (in the spring of 1890) to a diet of fish and meat, and he improved during the summer. APPENDIX.

This unfortunate gentleman, who kindly provided me with notes of his case, never regained strength, or even ordinary health; his history being a record of relapses and recoveries, and of a life of extremely restricted diet.

He was left with an extraordinary sensitiveness to cold, and, in order to protect himself from chills, was obliged to take unusual precautions as regards clothing.

A feature in his case was the size of the motions. There is a record of stools a foot long, formed but not hard, although only a very moderate amount of food was taken. Stools of the consistency of cream usually characterised the diarrhœa.

The tongue was never sore at any period of his illness, although sometimes rough and dry in the mornings, nor was there any history of painful swallowing.

[This is, in my opinion, a typical case of that form of Indian diarrhœa which can be easily

APPENDIX. distinguished from the psilosis linguæ of the Dutch.]

*Development
of symptoms
after return
to England.
Residence
in India
very brief.*

CASE 25.—This man, who seems to have been somewhat delicate, although he enjoyed fairly good health, visited India in December, when thirty years of age. He only remained two months in the country, and whilst there had a sharp attack of diarrhœa which only lasted a few days. On his return to England he was troubled with great drowsiness, frequently falling asleep during dinner. Six months after he had left India he found that certain kinds of food made him ill, bringing on attacks of retching, pain in the bowels, and diarrhœa attended by high temperature. He became very sensitive to chills, and during the febrile reaction which followed his temperature sometimes rose to 104° and 105° F. He had been much dieted, and had found that he did better when he avoided all fibrous vegetables and lived on mutton chops, game, and similar food. On this diet he lived for some years, continuing to suffer more or less, the discharges from the bowels being always copious. He continued to get weaker, and his nervous system became severely affected. In 1896 his

health improved on milk diet and massage. When he consulted me two months afterwards he was still suffering from looseness, there being two large, soft, unformed motions daily, which were usually in a condition of great fermentation, and he was in a state of considerable debility. On milk diet, rest, and warmth the diarrhœa ceased.

The treatment of the case is not yet concluded, but I quote it as illustrating the fact that the Indian variety of psilosis, in which the disease seems to be localised exclusively in the intestine, may be acquired during a very short residence in India, and may, as occasionally happens, develop seriously after the patient has returned to Europe. This man had never suffered from soreness of the mouth and tongue, with the exception of very slight occasional tenderness, and although when I saw him his symptoms were conclusive as to a very disordered condition of the intestinal mucous membrane, there were no sore places nor rosy points on the tongue, on which the fur was not abnormal. The case is a typical one of the *psilosis mucosæ intestini* without the *psilosis linguæ*.

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CASE 26.—A married woman with two young children, who had been six years in China, had diarrhœa each summer. It continued the whole of the last summer in China. It was well for two months before she left, but she had it for a week on the way home. The diarrhœa consisted of the passing of watery stools, sometimes pale and sometimes dark, in the mornings, there seldom being any motion after eleven o'clock.

She consulted me the first summer after she came home. She was then passing on an average two unformed, light-coloured motions daily. On the following diet—*breakfast*, stale bread, boiled eggs and milk; *midday dinner*, hot roast meat or mutton chop, with well-boiled cauliflower; *at five*, milk and egg, bread and butter; *in the evening*, milk, with arrowroot or corn-flour—the motions became healthy and natural, and her general health improved.

There was no history in this case of sore mouth, or of the symptoms characteristic of psilosis, and this brief note is given to illustrate the fact that cases of chronic diarrhœa occur in China which are similar to diarrhœa alba, and which can be distinguished from psilosis linguæ.

GROUP IV.

Cases 27 to 30. Four cases illustrating the difficulty which is sometimes found in strictly classifying cases of diarrhœa of the tropics.

CASE 27.—Amongst the causes of chronic diarrhœa in China and the adjacent countries the intestinal worm takes a place, although it seems as if a large round worm may in many cases inhabit the intestine, causing few or no appreciable symptoms. This is not always the case. For some time a resident in Pakhoi suffered from diarrhœa, passing large quantities of mucus. The only treatment that relieved this diarrhœa was the use of purgatives. He then took santonin, and passed two round worms, after which the diarrhœa got well. Although he remained well on the whole up to the following year, when I saw him in England he was liable to attacks of diarrhœa from slight causes. The motions at this time contained mucus, there being mucus on their surface even after he was well.

*Diarrhœa
caused by
worms.*

CASE 28.—A lady who at one time had been a number of years in China, where she had not

APPENDIX.

*Tongue and
intestinal
symptoms
developing
seventeen
years after
return to
England.*

suffered from diarrhœa or dysentery, had been home for seventeen years when she consulted me in June, 1893, for a pain in the side of the tongue. A few days afterwards small blisters appeared on the palate. The blisters healed, and left a reddish mark with a central depression. The tongue remained irritable and sore, and she consulted me again in January, 1894. For the three weeks ending in the middle of December, the tongue had been quite comfortable, but fourteen days before consulting me it began again to be painful. Up to this time I had not associated the state of the tongue with any intestinal condition, or with a previous residence in tropical countries. The patient was an anæmic woman, and in several ways far from robust, and I believed the tenderness of the tongue to be due to some temporary disturbance in her general health. On this occasion the unusual symptoms in the mouth arrested my attention. The amount of tenderness on certain localised parts of the sides of the tongue, and the periods of remission and exacerbation, were symptoms that removed the case from any category of common complaints seen in this country.

On inquiring more closely into the condition of

the intestinal functions, I learnt that for some time the motions had been unformed and copious. I then had the patient brought under close observation, and ascertained that there were several large, unhealthy motions passed daily, of a pale yellow or whitish colour, and of an offensive, sickening odour. Under a course of exclusive milk diet, prolonged over a period of five to six weeks, the tongue symptoms gradually abated, the diarrhoea was arrested, the motions became healthy, and the patient got quite well.

On careful inquiry I ascertained that for a period of at least six months before she had consulted me the motions had been unformed and unnatural in appearance, and that there had been occasional attacks of diarrhoea.

Without straining the inference that may be drawn from a solitary case, there is no doubt that the condition of the tongue and the bowels was due in some unexplained way to the effect of residence in China seventeen years before she returned to this country.

CASE 29.—A man, who had passed a great many years in China, returned to this country

APPENDIX. suffering from the symptoms which are usually set down to "sprue."

He did not consult me until seven years after he had been in England. He stated that the first four years after his return he suffered continuously, but for the last three years his health had been better on the whole, although there was always more or less diarrhoea. He suffered from an irritable tongue. Although I am not able to make a diagnosis from my own observations, the history of the case, and his condition when I first saw him, left no doubt in my mind that the case had been one of psilosis linguæ. The active cause of the disease had probably been for some time in abeyance, but the sequelæ still continued.

*Enumera-
tion of blood-
corpuscles.*

When I first saw him Dr. Wethered examined his blood, and found that the hæmoglobin equalled 58 per cent., the number of red blood-corpuscles 2,500,000, the proportion of white to red 1 in 400. After five weeks of exclusive milk diet the hæmoglobin equalled 68 per cent., the red blood-corpuscles 3,800,000, and the proportion of white to red 1 in 450.

He made a steady and satisfactory recovery.

CASE 30.—A woman *æt.* 40, who had been in Ceylon for fifteen years, with an occasional visit home, had an attack of dysentery after influenza. This was followed by diarrhœa, characterised by large motions. There were periods of comparative health, followed by relapses, and the passage of considerable pieces of skinny mucus.

I saw her more than two years after her first attack, and found that for eighteen months she had had a tendency to sore mouth, brandy and water, and pepper burning it. What she described as small pustules appeared in the throat and mouth. When I saw her she was suffering from diarrhœa, great debility, and tenderness on the left side of the abdomen. Neither the condition of the tongue nor the stools at the time I saw her were characteristic of psilosis. She made a satisfactory recovery by being kept on exclusive milk diet, with the usual additions after the diarrhœa had been for some time arrested, and the abdominal pains gone.

Although this was a case of unmistakable climatic disease of the bowel, I do not feel justified in including it in any of the recognised categories. It was certainly not a case of diarrhœa alba or dysentery; and the symptoms, when the patient

APPENDIX

came under my care, differed from those of psilosis linguæ in some important respects. As I have observed cases of true psilosis linguæ from Ceylon, and as the patient's disease was acquired there, I have given this brief note of the case.

CASE 31.—*A case to illustrate the successful treatment of chronic dysentery by milk diet.*

A man æt. 30, after being six years in Manila, was attacked by dysentery and fever, which necessitated his return to England. Having recovered he returned to Manila the following year, but as soon as he arrived was again attacked by dysentery and diarrhœa.

When he consulted me he was pale, anæmic, and emaciated. His motions consisted of blood and mucus and loose feculent matter. His tongue was clean, but was not polished nor destitute of papillæ. The bowel could be felt to be thickened in the region of the sigmoid flexure. He was put at once on exclusive milk diet, and I directed a few enemata to be given of a solution of nitrate of silver, which were continued daily for several days. Every fourth night he was to take a pill containing a small dose of ipecacuanha, mercury, and rhubarb, and each morning a dose of bael mixture. For the first two days the loose stools decreased to two a day, with less blood and mucus. Afterwards the blood disappeared from the stools, and the mucus was present only

*Chronic
dysentery
treated by
milk diet
and nitrate
of silver
injections.*

APPENDIX. in very small quantities. After the fourth day the motions were nearly quite formed, and larger in calibre than any that had been passed for over two years. The milk diet caused a good deal of flatulence, and consequent pain and discomfort, but he persevered with it. He stated that he fell in weight in the first twenty-four hours of treatment from 10 st. 5 lbs. to 10 st., but after that he remained stationary. In three weeks from the time the treatment began all symptoms of diarrhoea and dysentery had ceased. He was taking two to three quarts of milk daily, and no other food. After a month's treatment he was allowed a little solid food, and he made a perfect recovery.

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DESCRIPTION OF THE PLATES.

The first two Plates, the cases of Mrs. H— and Mrs. G. N—, represent the appearances in the tongue of patients whose cases are related in considerable detail in the seventy-fifth volume of the 'Medico-Chirurgical Transactions.' In both patients the disease had fully established itself at the time the drawings were made, but they had not passed into the period of exhaustion, and were able to travel. In the case of Mrs. G. N— the malady had taken a firmer root than in that of Mrs. H—. In the latter case three herpetie groups of vesicles are seen on the soft palate.

The third Plate represents the general appearance of the tongue in the case of a patient whose history is given in this volume—Case 7. At the time the drawing was made the disease had firmly established itself, but the patient's strength was not greatly affected, and he was able to move about actively.



C. B. Burgess del.

Mintem. Bros. Chromo.

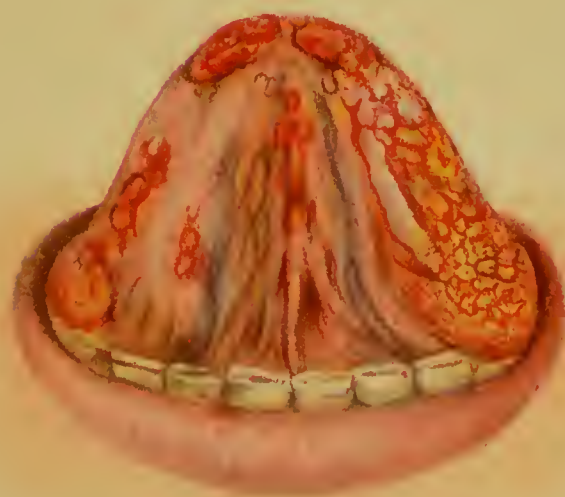
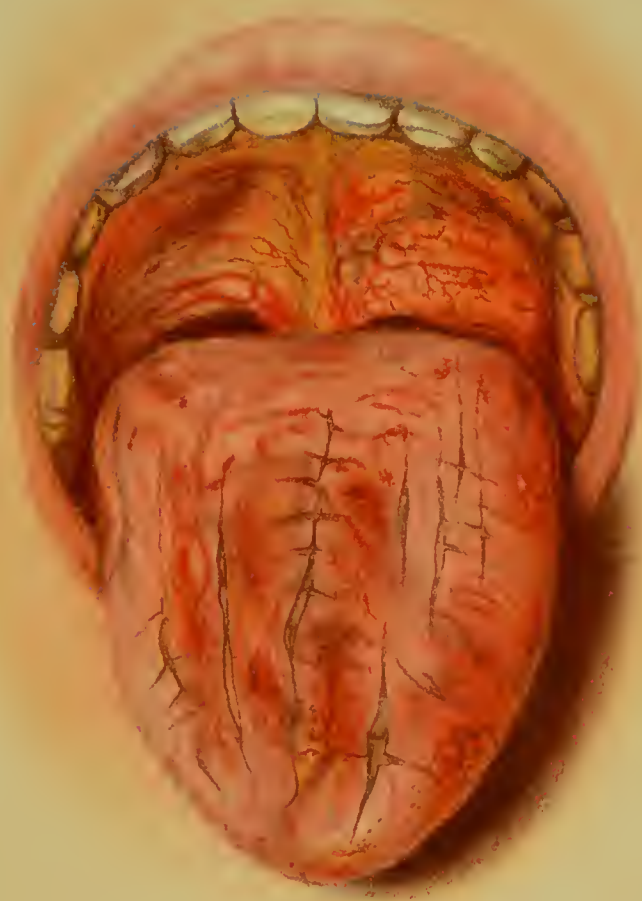
Case of Mrs H



C. H. M. 1892

Mintern Bros. Chrome

CASE of M^{rs} G. N.



Sp

